FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.

Mr. Churchill and the Naval Air-Service.

The statement of the First Lord of the Admiralty, on the introduction of Supplementary Estimates for the Navy last Monday, is at once satisfactory and a little disappointing in relation to the Naval air-service. He began with the admission that we were very late in starting, and that a year ago we were very far behind France and Germany in aeroplanes, and were practically unprovided with airships. This is in marked contrast to the optimistic view taken by the heads of both services at the time of which he spoke. For far too long, while those who were in the best position to know of the developments taking place abroad, we had to be content with the spectacle of responsible Ministers averring, with hand on heart, that all was well and that we had nothing to fear from our policy of marking time. On many occasions we ourselves pointed out the utter futility of sitting with folded hands while our rivals went ahead. True, development was taking place at the expense of others, both in men and material; and we have been able in the end to come in, as it were, on the tails of their experience. That, however, is not the way in which we have been accustomed to obtain our lead over other countries in invention and industry, and it is correspondingly disappointing that we have had to gain our experience of aircraft at second hand, as it were, assimilating and applying the lessons initially learnt by our rivals.

However little it may be soothing to our national *amour propre*, there is, it may be admitted, something in Mr. Churchill's dictum that it will be found that our caution and tardiness in airship construction will ultimately be fully justified. Materially, that may be so, but then we have been accustomed to take the *rôle* of pioneers in these things, and it does not seem in consonance with the national character that we should, like a timid horseman, wait for a lead over every little fence in the field. We fully accept the First Lord's statement that the importance of aviation is fully appreciated by himself and his technical advisers, and we believe absolutely in his sincerity when he says that there will be no looking back. Tremendous strides have been made during the year in the direction of setting our aerial service—or, at any rate, the Naval Wing—on a basis comparable to that of our possible enemies. Perhaps the progress has not been as great as we could have wished, but it must not be lost to sight that, as Mr. Churchill pointed out, the creation of an entirely new branch of armaments is not a thing that can he done in a day. Everything, to use the First Lord's own words, has to be supplied at the beginning—sheds, plant, appliances, and land, as well as the actual instruments of aviation. All the more reason, though, why the work should have been taken in hand earlier—as soon, indeed, as the recognition was first born that aviation was destined to play an important, possibly a vital, part in the warfare of the immediate future.

Mr. Churchill did not take the House very far into his confidence with regard to our strength in the air, either actual or as compared with that of others of the Great Powers. All he said was that the Admiralty has arranged for the purchase of certain airships, details of which were given. He then went on to say that this programme (of airship construction), though considerable, is modest in comparison with what is being and has been done abroad, and we cannot pretend that it compares effectively either with French or German achievements and exertions. Having regard, however, to our great and growing superiority in the seaplane, and all connected with its development, he considered that the additional airship provision which the House was asked to sanction was, under the present conditions, sufficient.

We believe that, as the First Lord avers, we are well ahead of all the nations in the matter of the seaplane. At any rate, all the information and data at our disposal points that way. In France the type has been relatively neglected, and we are certainly in front in that direction. Compared with Germany, too, such information as has been allowed to transpire would lead to the same conclusion, but it is notorious that very little of a really informative nature is allowed to leak out regarding German achievements, and it may therefore be that those conclusions are based on entirely false premises. We take it, however, that the Admiralty is well posted in regard to what is taking place on the other side of the North Sea, and we must accept the statement as confirmation in full of our own preconceived views. That, so far as it goes, is satisfactory. But we are not, as we have previously pointed out, vouchsafed any figures of relative strength to confirm the statement that everything is as satisfactory as we would have it. After all that has happened in relation to the air-services, it is asking something of our faith when we are required to take these unbacked assurances at face value. It is all very well to treat these matters as confidential, and, supposing there were the least reason to think that all the figures relating to number of seaplanes, naval air-craft stations, and all the collateral details were not as well known to the German Admiralty as to our own, we could understand and appreciate this cloak of official secrecy. As it is, we cannot see why the figures should be withheld from the country. It would, however, be ungracious to criticise too severely on such a point as this, particularly as we have the fullest confidence in Mr. Churchill's determination to make the Navy—which connotes the Naval air-service—absolutely paramount and unassailable.

* * *

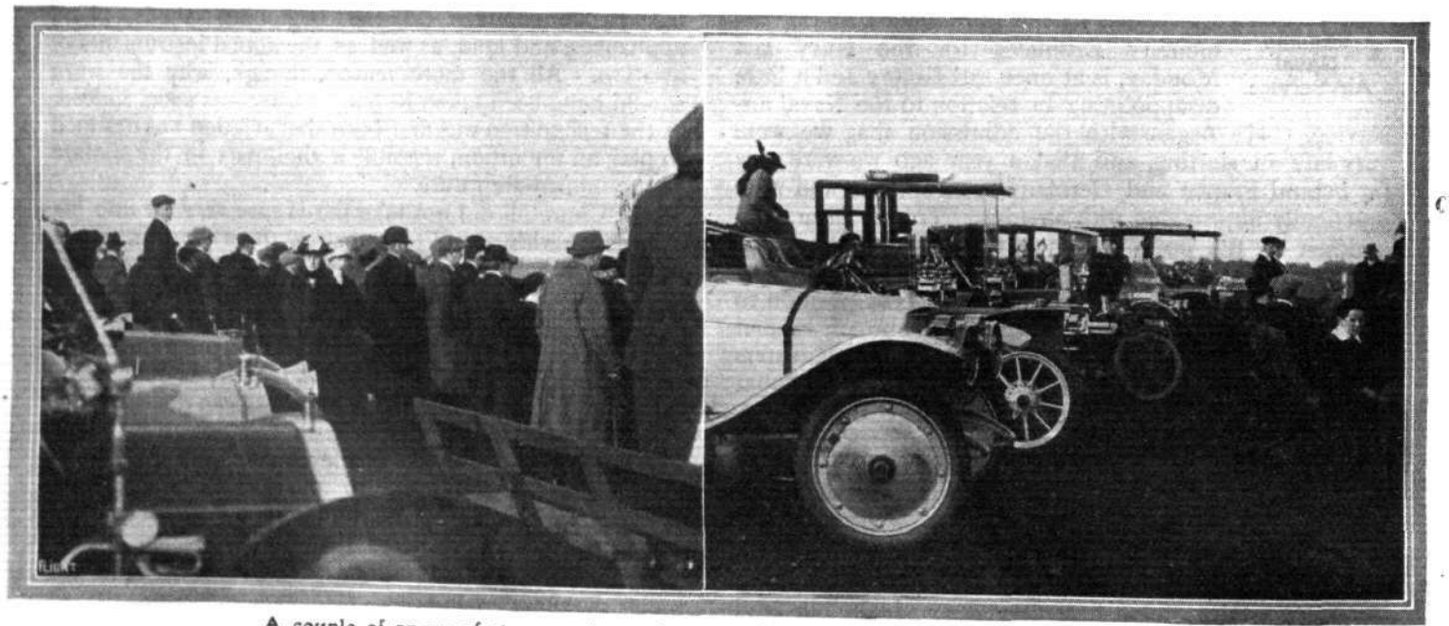
A Heterogeneous Fleet.

Leaving the main issues and coming down to details, there is one point in the First Lord's statement which may quite conceivably give rise to criticism on the part of amateur students of aerial tactics, so far as they are understood at the moment. This is the heterogeneous character of the airship fleet for which contracts have been placed. This fleet consists of eight vessels, of four different and totally distinct types. The popular conception of aerial war is something in the nature of a fleet action between squadrons of huge airships, with flights of aeroplanes hovering in the middle distance, waiting an opportunity of a home thrust at one of the hostile airships. Now, as at sea, the tactical advantage in such an action would undoubtedly lie with the fleet which was the more homogeneous in composition, and it would thus appear on the face of things that the policy which leads to the building of a diversity of types is a mistaken one. With that view we do not agree at the present moment, though in the time to come there can be little doubt that the rules which now apply to the composition of the battle-squadron will apply with equal force to air-craft. At present the airship is still in process of evolution, and it would be a capital mistake to standardise types too soon. Far better is it to do as the Admiralty is doing—to place at the disposal of the Service airships of several types, each having its own individual points of merit, in order that those who have the handling of them may become familiarised with all that is best in construction and control. By that means the march of evolution is likely to be far more rapid than it would be if we were to adopt a single type and slavishly pin ourselves to it. But the policy of "mixed pickles" must not be allowed to go too far. That is the danger in these matters. A policy may be excellent for the time being, but there is a limit beyond which it is not safe to go.

* * *

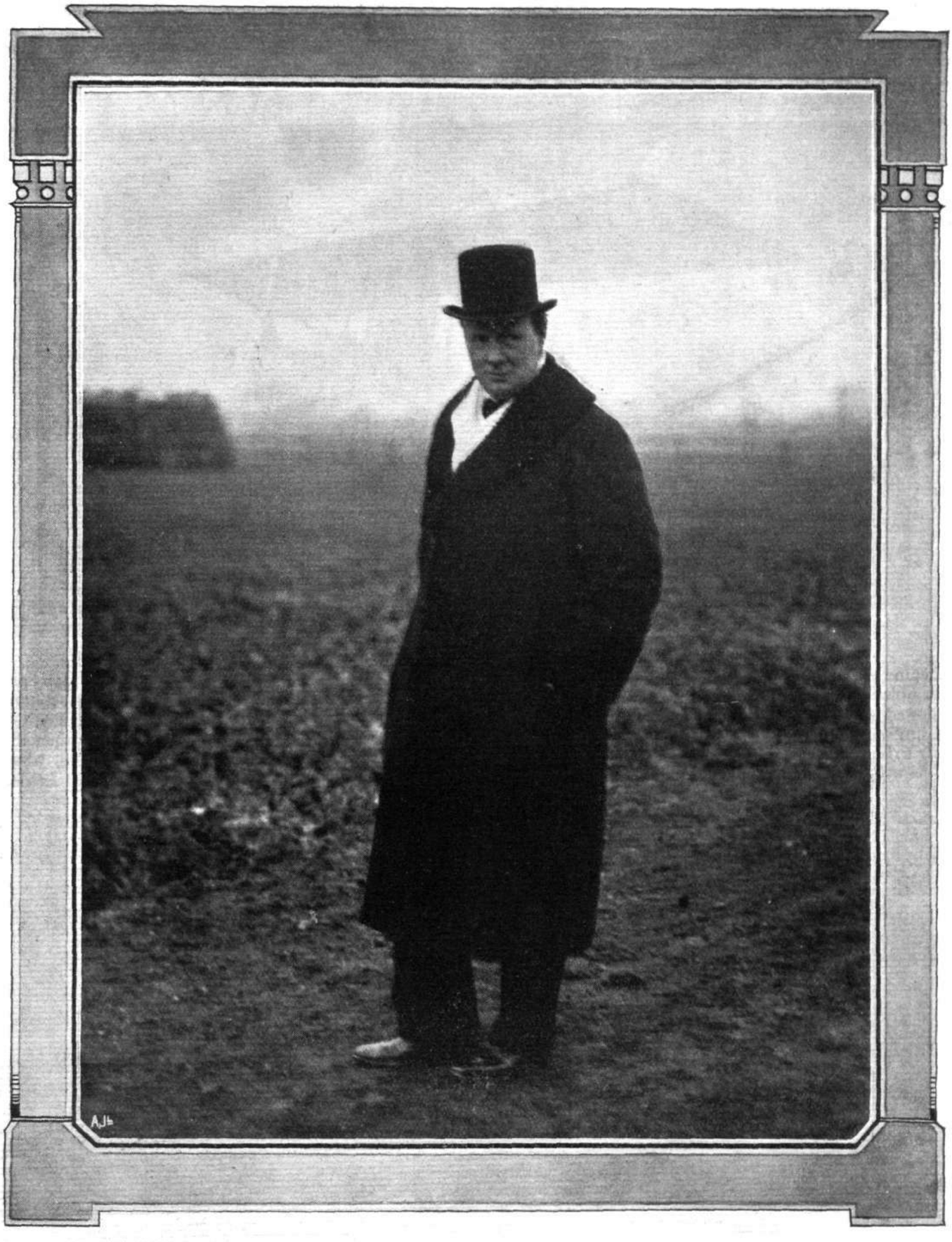
An Airmen's Benevolent Fund.

The decision of the Royal Aero Club to institute a Benevolent Fund for aviators, their wives, widows and dependents in necessitous circumstances is eminently one in the right direction, for, contrary to the public belief that the aviator is one who is paid fabulous sums for the risks he takes, the ordinary scale of remuneration is not such as would enable a man to pay his way and at the same time make adequate provision against all the contingencies incidental to his profession. Therefore, we welcome and applaud the Club's action, which has been conceived in the best interests of all who are actively connected with the movement of flight. The industry is yet young, and we cannot hope immediately to see the fund attain to the almost colossal proportions of the Benevolent Fund associated with the sister industry of motoring, but then the trade will grow and the fund with it, and it may be that in the years to come it will rival that other fund of which we have spoken.



A couple of snaps of the crowd watching the flying at Brooklands on Sunday last. "Flight" Copyright.

MEN OF MOMENT IN THE WORLD OF FLIGHT.



THE FIRST LORD OF THE ADMIRALTY.

THE GRAHAME-WHITE TRACTOR BIPLANE.

IT is the usual practice of manufacturers who have evolved a successful machine to retain the main design and confine their attention in future machines to detail improvements. Not so with the Grahame-White Aviation Co. Since this enterprising firm first entered the field of aeroplane construction, they have turned out one type of machine after another, each of which has had hardly any resemblance to its predecessor. A pusher box kite was followed by a tractor biplane, then a monoplane. Next in turn was another pusher, this time quite a small affair, only to be succeeded by a huge biplane which, on account of its weight-carrying capabilities, was dubbed "Char-a-bancs." The next machine to issue from the G.-W. works was a diminutive biplane of the tractor type, and this had scarcely left the stocks before another and different type was put in hand for the Olympia show. But we are anticipating events.

The subject of our scale drawings this week issued from the Grahame-White works some time ago, and created some excitement by winning a cross-country race the first time she was flown, without any previous test flights of any description. Since then this machine has been flown repeatedly at Hendon, where she is known to frequenters of the aerodrome as "Lizzie."

Three-quarter front view of the Grahame-White tractor biplane.

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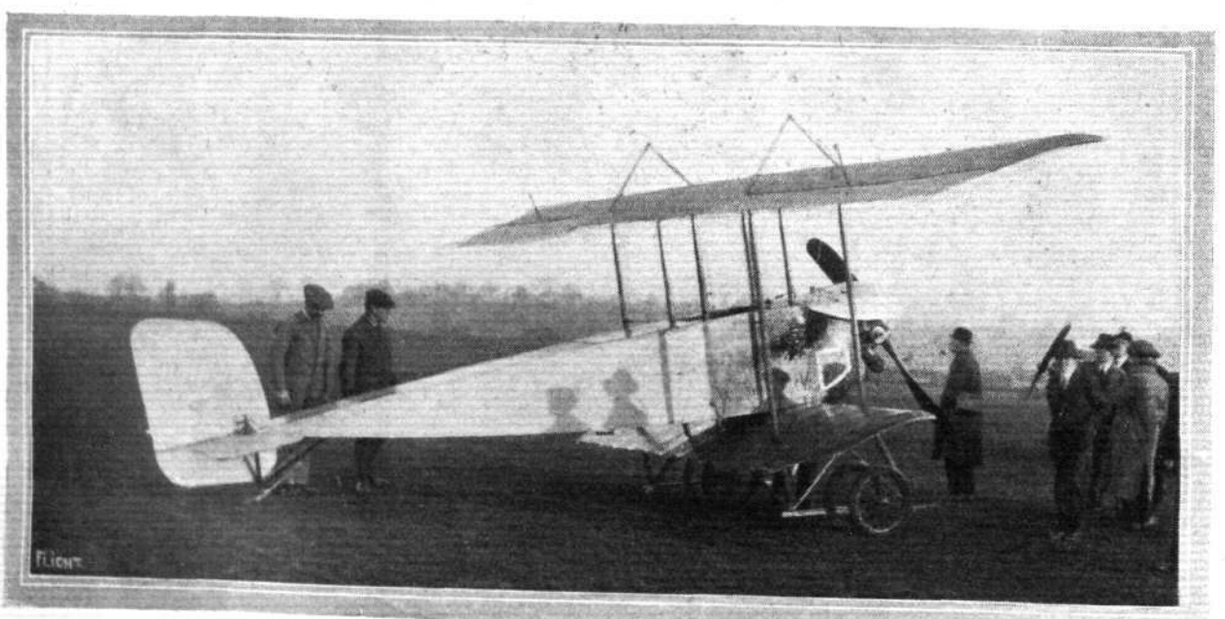

Three-quarter rear view of the Grahame-White tractor biplane.

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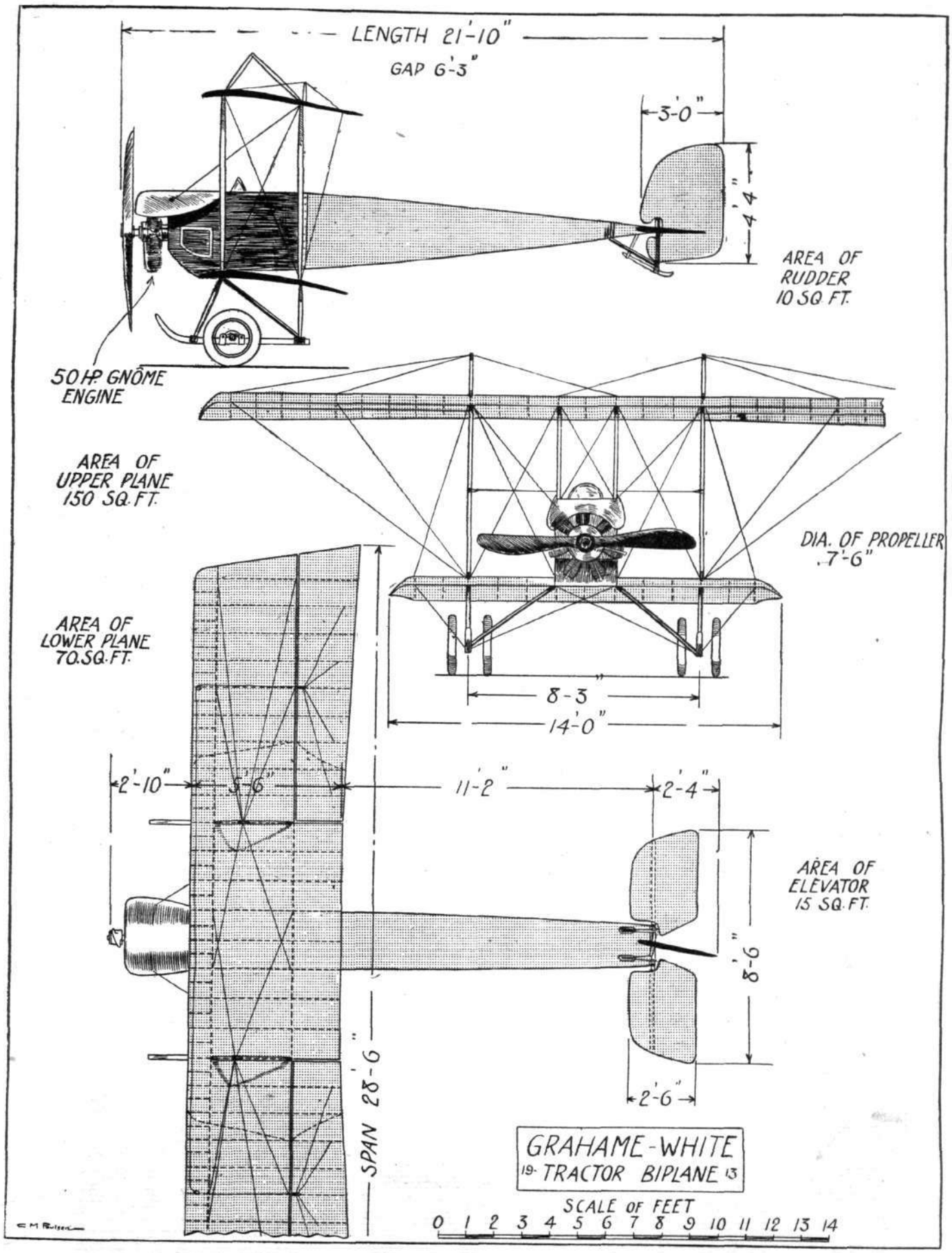


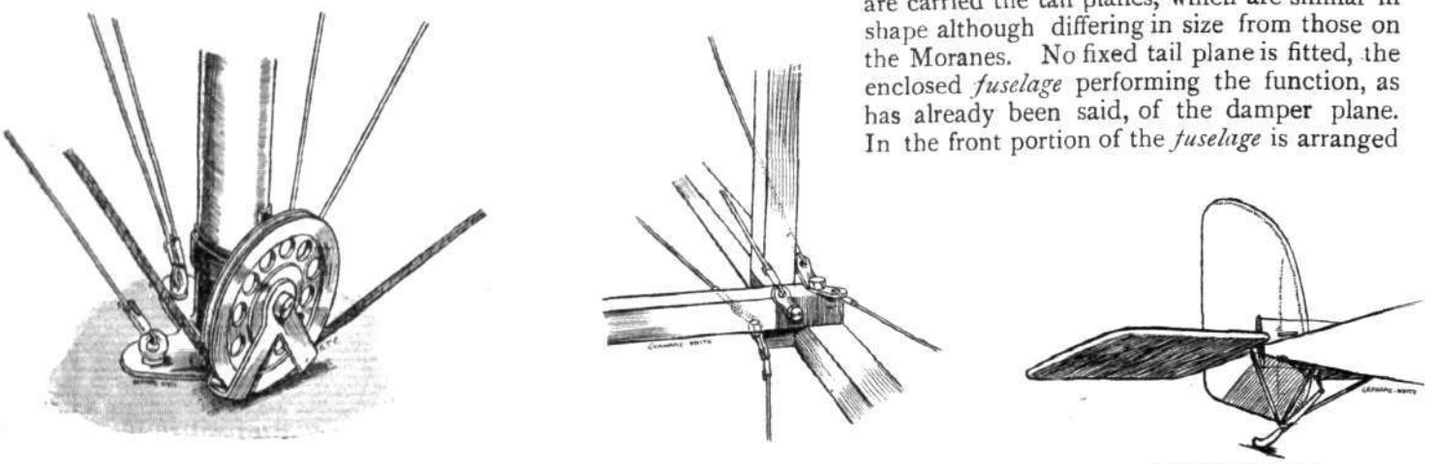
THE GRAHAME-WHITE TRACTOR BIPLANE.—Plan, side and front elevation to scale.

However, in spite of her rather startling appearance she flies quite well in the hands of Mr. Reginald Carr.

As will be seen from the accompanying scale drawings the upper plane possesses a very considerable overhang, the lower plane being of quite diminutive size. As the *fuselage* is placed comparatively low down—right on top of the lower plane in fact—the centre of gravity, as well as the centre of thrust, must be considerably lower than is usual in machines of this type. From a rough estimate of weights and resistances, it would be expected that the machine would be very sensitive to variations in thrust, such as are caused by switching the engine on and off, but a careful inspection of the machine in flight failed to show any such tendency, so that one can only assume that the horizontal area of the enclosed *fuselage* acts as a very effective damper plane in preventing any sudden oscillations around the transverse axis of the machine. Also transversely the machine appears to be very stable, the large *ailerons* fitted to the upper plane rarely being called into action, and on such occasions as they are used they seem very effective, so that the machine appears to be amply controlled.

As for the low centres of gravity and thrust, these cannot be lower than those of the Morane-Saulnier "Parasol," which is, perhaps, the machine with which this new Grahame-White tractor may be most readily compared, and which has already shown itself capable of very good performances, indicating that in a modern machine a low centre of gravity is not necessarily detrimental to good flying qualities.

Constructionally the machine is built along orthodox lines following standard practice. The *fuselage*, which, it will be seen, is similar to that of the Morane-Saulnier monoplane, is built up of four *longerons* connected by struts and cross members, the whole being made rigid by diagonal cross bracing in the usual way. The *longerons* converge to a horizontal knife's edge at the rear, where are carried the tail planes, which are similar in shape although differing in size from those on the Moranes. No fixed tail plane is fitted, the enclosed *fuselage* performing the function, as has already been said, of the damper plane. In the front portion of the *fuselage* is arranged the pilot's seat, in front of which is the control lever, a universal pivoted steel tube actuating the elevator and *ailerons* in the usual way. A pivoted foot-bar operates the rudder. The pilot is protected against the wind by a neat little shield of transparent material. Mounted on overhung bearings in the front of the *fuselage* is the engine—a 50 h.p. Gnome—which drives directly a propeller of 7 ft. 6 ins. diameter. Between the engine and the pilot's seat are the oil tanks, and a service petrol tank containing 12 gallons, whilst an additional supply of 10 gallons of petrol is carried in a reserve tank behind the pilot's seat. The *fuselage* is covered with fabric in the rear portion, whilst



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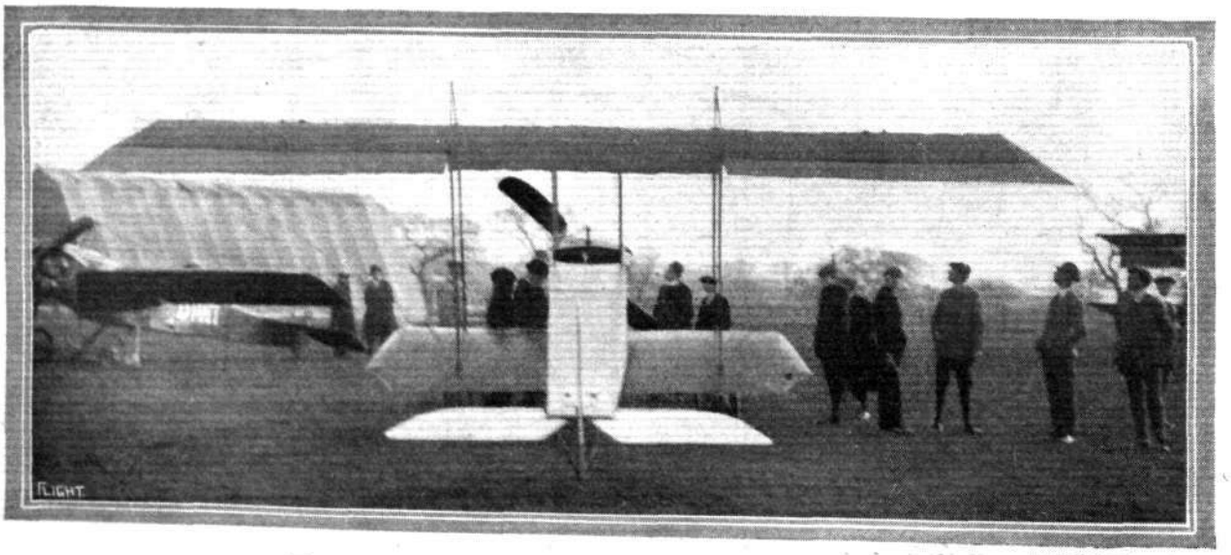
Strut socket and pulley for *aileron* cable, method of joining struts and cross-members to *fuselage longeron*, and tail plane of the Grahame-White tractor biplane.



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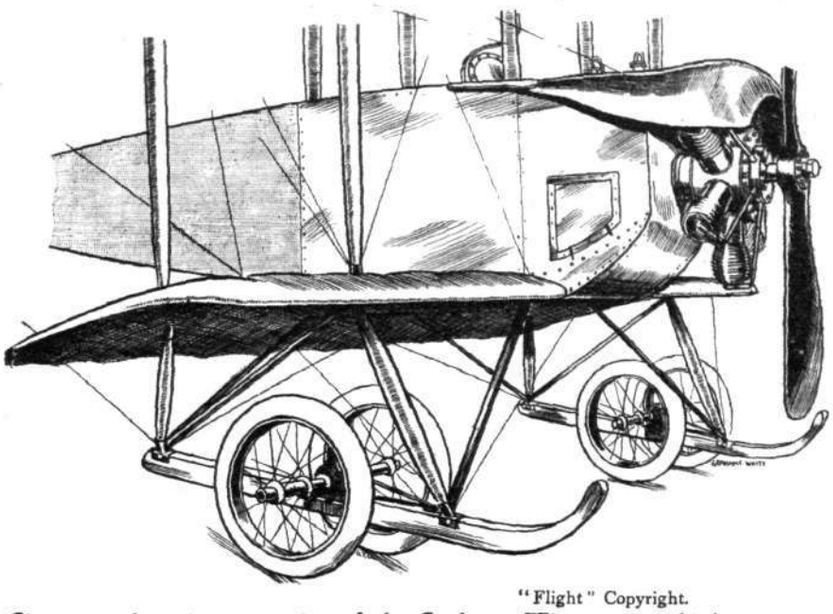
The Grahame-White tractor biplane as seen from behind.



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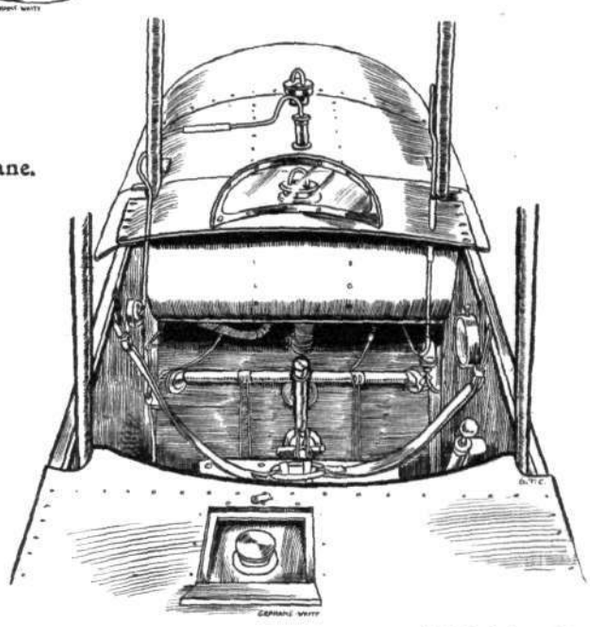
Chassis and engine mounting of the Grahame-White tractor biplane.

the front part is covered with three-ply wood. The main planes, of which the upper one has a very pronounced overhang, are built up over two main ash spars, both of I section, and the ribs occur at every foot, approximately, along their length. At those points at which the interplane struts are attached to the spars, the ribs are of the hollow box variety; in other places they are built up, I section, of spruce flanges and three-ply webs. To better maintain the shape of the plane, false ribs, extending from the loading edge to the front spar, are arranged halfway between each pair of main ribs, and a pair of transverse stringers are run, at a point halfway between the front and rear spars, from one end of the plane to the other. Four pairs of spruce struts connect the main planes by diagonal cross wiring. The chassis, which is of the Henry Farman type, consists of two ash skids, carried on vertical struts of the same material, and made rigid by means of steel tubes of streamline section, which slope inwards to join the lower main spars at the point where the latter join the interplane struts. Each skid carries a pair of wheels on a short tubular axle, sprung from the skid by rubber shock absorbers. In order to lighten them, the skids are spindled out to an I section between the points where the struts are attached. Two tubular *cabanes* or king posts serve as an anchorage for the upper bracing wires, which carry the weight of the extensions of the upper plane, when the machine is on the ground. A tail skid, similar to the one employed on the Morane-Saulnier monoplane, protects the tail planes against contact with the ground. The machine gets off very quickly, and appears to climb well, and she is certainly very fast for a biplane with so small power. Her speed is in the neighbourhood of 65 m.p.h., and the weight is 850 lbs., including pilot, petrol, and oil.



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Sketch of pilot's cockpit in the Grahame-White tractor biplane.

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THE ROYAL FLYING CORPS.

THE following appointment was announced in the *London Gazette* of the 3rd inst. :—

R.F.C.—Military Wing.—Second Lieut. David E. Stodart, Special Reserve, from the Reserve, to be a Flying Officer. Dated February 5th, 1914.

ROYAL FLYING CORPS (MILITARY WING).

WAR OFFICE summary of work for week ending February 27th, 1914 :—

Flying Depôt. S. Farnborough.—Experimental and repair work was continued and assistance given to the Inspection Branch.

No. 2 Squadron. Montrose.—The Officer and N.C.O. pilots were busy flying throughout the week. Many reconnaissance flights were made.

No. 3 Squadron. Netheravon.—Flying was interfered with on several days owing to fog. Some range-finding experiments were carried out during the week.

No. 4 Squadron. Netheravon.—The officer pilots of the squadron made some long reconnaissance flights, and experimental work with lights was continued.

No. 5 Squadron. S. Farnborough.—The officer pilots of the squadron carried out several cross-country reconnaissances. Experiments in landing after dark by means of a searchlight were made.

No. 6 Squadron. S. Farnborough.—The week was devoted to testing machines newly handed over to the squadron. Some long reconnaissance flights were made.

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UNDER THE WHITE ENSIGN.

"IT is a little difficult to read without impatience the more or less querulous demands to Mr. Churchill 'not to risk his valuable life in an aeroplane.' It recalls one of the craziest phases of the early days of motor cars, when there were similar wails about exalted personages motoring! An aeroplane to-day is every bit as safe as a motor car—if anything, safer. Practically every sky accident has been due to 'circus-flying' of some kind or other, more or less on a par with motoring round corners at full speed! The number of actually unavoidable accidents is trivial. If Mr. Churchill took to 'looping the loop,' there might be some grounds for interfering with his amusements—though even so, the Navy would prefer that to a First Lord who carefully abstained from learning anything about his job for fear he might get hurt! Opinions on Mr. Churchill vary considerably; but the entire Navy is absolutely unanimously appreciative of the motives which have induced Mr. Churchill to be the first First Lord to hold it desirable to know something of what he is talking about. If some of his colleagues had followed his example of acquiring technical knowledge of their special subjects, there would be fewer smiles at the mention of the words 'deer-forest' or 'mangel-wurzel' than there are to-day."—By FRED T. JANE, in the *Evening Standard*.

Mr. Hawker at Sydney.

ON Sunday last Mr. Hawker concluded his series of flights on the Sopwith machine over the racecourse at Sydney, N.S.W. He took up several passengers, and also did some fancy flying which was greatly applauded.

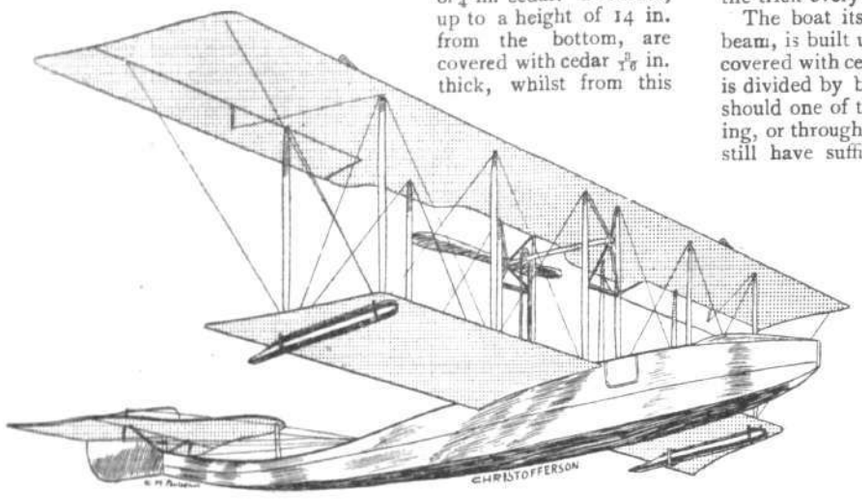
SOME AMERICAN FLYING BOATS.

(*Concluded from page* 213.)

The Christofferson Flying Boat.

THE flying boat built by Silas Christofferson, and equipped with one of the new Hall Scott 100 h.p. engines, normally carries three passengers at a speed of 60 m.p.h., but it would probably carry another passenger if extra seating accommodation had been provided.

In its arrangement of the engine, placed down in the hull instead of between the planes, the Christofferson flying boat resembles the Benoist, and, like that craft, despite the low centre of gravity, flies very well. The boat itself, which measures 24 ft. 6 in. in length, is built up of $\frac{1}{4}$ in. by $\frac{1}{2}$ in. spruce ribs, reinforced by $\frac{1}{2}$ in. longitudinal spruce stringers. The planking consists for the bottom of $\frac{1}{4}$ in. cedar. The sides, up to a height of 14 in. from the bottom, are covered with cedar $\frac{5}{16}$ in. thick, whilst from this



The Christofferson flying boat.

point to the gunwales the sides are covered with cedar $\frac{1}{8}$ in. thick. The wind shield in front of the pilot's seat is covered with $\frac{1}{8}$ in. mahogany. The single seat in front is occupied by the pilot, whilst the two passengers sit side by side in another seat on a level with the leading edge of the wings. Immediately behind the passengers' seats is the engine, which, through a 18–24 chain gearing, drives the propeller mounted 14 ins. below the rear spar of the upper main plane. The propeller-shaft is of hollow chrome nickel steel, and has a diameter of 2 ins. at the propeller, tapering to $1\frac{1}{2}$ ins. at the front. The radiator is placed behind the engine, while the petrol and oil tanks, which have a capacity of 20 gallons, are placed in the bottom of the hull under the engine.

It will be noticed that the upper main plane has a very pronounced overhang, the weight of which is taken, when the machine is at rest, by cables passing over king posts or *cabanes* situated above the outer pair of plane struts. In order to provide clearance for the propeller, the trailing edges of the planes have been cut away for a short distance from the hull. The *ailerons* fitted to the upper plane have a greater chord than the remainder of the trailing part of the wing, in order, no doubt, to render them more efficient. Constructionally, the wings consist of two main spars of I section formed by a web having three laminations, $\frac{5}{8}$ in. thick, mortised into the flanges. The ribs are built up in the usual way of webs, bored out for lightness, mortised into the flanges, and glued and nailed.

The leading edge is composed of two strips, of which the front one is sharply pointed, whilst the trailing edge is formed by a strip of spruce with an oval leaving edge. Mounted on the upturned rear portion of the boat is the fixed tail plane, to the trailing edge of which is hinged the divided elevator. The rudder, which is partly balanced, is hinged to an extension of the stern post of the hull. The bottom of the boat, which is of the flat non-stepped type, is protected by two runners of spruce hollowed out for lightness and canvas-covered and waterproofed. Mounted under the tips of the lower plane are two floats cylindrical in front and flattened out at the rear.

The dimensions of the Christofferson flying boat, two of which it is stated have been ordered by the Norwegian explorer Amundsen, who intends to utilise them on his next expedition, are :—

Span of upper plane	49 ft.	Gap	5 ft. 5 in.
,, lower plane	33 ft. 6 in.	Weight	1,200 lbs.
Length over all ...	28 ft.	Speed with 100 h.p.	
Chord	5 ft. 6 in.	Hall Scott engine	60 m.p.h.

The Thomas Flying Boat.

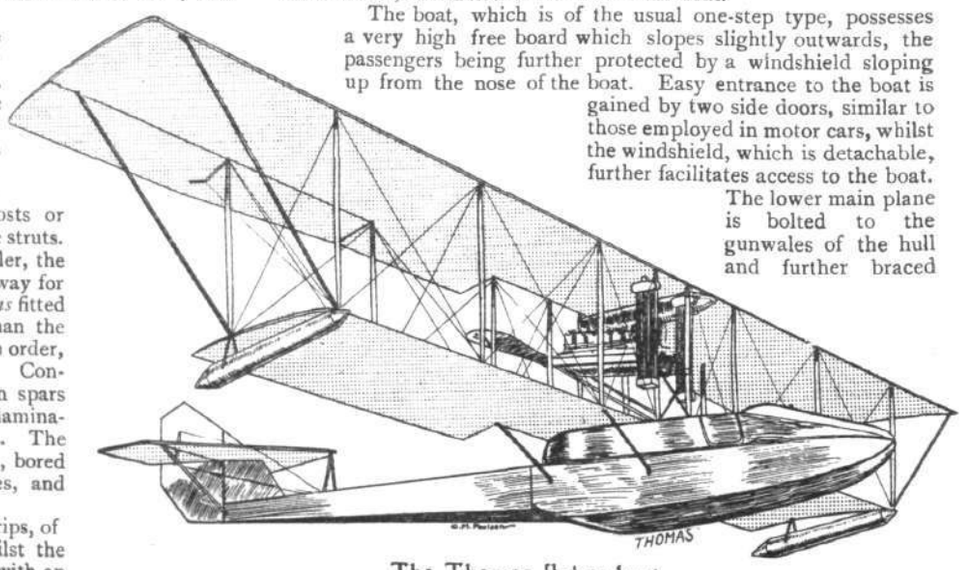
The flying boat built by the Thomas brothers follows along conventional lines, no startling innovations being manifest either in design or construction, but, as our American cousins put it, it does the trick every time.

The boat itself, which is 26 ft. long, 2 ft. deep, and with a 3 ft. beam, is built up of internal crossed ribs spaced 8 ins. apart, and covered with cedar planking in cross diagonal narrow strips. The boat is divided by bulkheads into four watertight compartments, so that should one of the compartments spring a leak through a heavy landing, or through some other cause, the remaining compartments would still have sufficient buoyancy to keep the machine afloat.

As will be seen from the accompanying sketch, the upper main plane has a very considerable overhang, the weight of which is taken, when the machine is at rest, by two steel tubes running from the lower socket of the outer plane struts to a point about a foot from the tip of the upper plane. Wing tip floats of cylindrical shape are fitted under the lower wing tip in order to keep these clear of the water. The wings are built up of laminated spruce ribs, spaced roughly a foot apart, and joined to the main spars by metal strips. The front spar is D-shape in section, measuring $1\frac{1}{8}$ in. by $1\frac{3}{4}$ in., whilst the rear spar is of approximately the same cross section size, but rectangular. The distance between the spars is $44\frac{1}{2}$ ins. The interplane struts, which are of spruce and, of course, streamlined, join the spars by quickly detachable sockets of a special design.

The engine—a 90 h.p. Austro-Daimler—is mounted on ash engine bearers between the inner plane struts, the whole structure being stiffened by diagonal steel tubes. On the two front struts and in front of the engine, are mounted the two radiators, whilst immediately under the top plane and outside the inner *cellule*, is mounted the petrol service tank, from which petrol is fed to the engine by gravity. The main petrol tank from which petrol is forced to the service tank, is situated in the hull of the boat.

The boat, which is of the usual one-step type, possesses a very high free board which slopes slightly outwards, the passengers being further protected by a windshield sloping up from the nose of the boat. Easy entrance to the boat is gained by two side doors, similar to those employed in motor cars, whilst the windshield, which is detachable, further facilitates access to the boat. The lower main plane is bolted to the gunwales of the hull and further braced



The Thomas flying boat.

by diagonal steel tubes. At the rear of the boat are carried the tail planes, consisting of a triangular fixed tail plane to the trailing edges of which is hinged the divided elevator. The rudder is hinged to an extension of the sternpost of the boat, whilst a small fin of roughly triangular shape and projecting a slight distance above the fixed tail plane, completes the tail unit. The controls are of the Curtiss type, consisting of a rotatable hand-wheel mounted on a vertical column. Rotation of the wheel operates the rudder, and a to and fro movement of the column actuates the elevator.

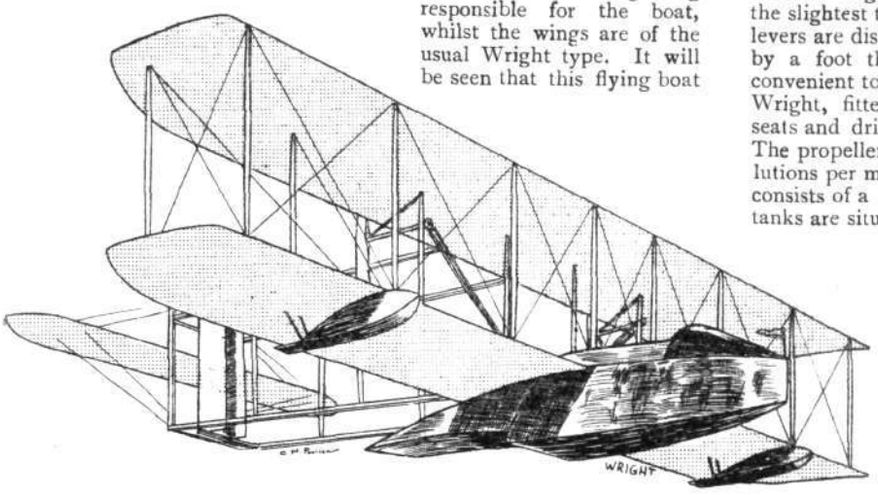
The *ailerons*, which are hinged to the trailing edge of the upper plane only, are operated by a shoulder yoke, similar to that fitted to Curtiss machines.

The dimensions of the Thomas flying boat are :—

Span of upper main plane	43 ft. 6 in.	Gap...	5 ft. 4 in.
Span of lower main plane	33 ft. 6 in.	Total area	350 sq. ft.
Chord	5 ft. 6 in.	Weight, empty ...	1,200 lbs.
		Useful load ...	750 lbs.

Wright Flying Boat.

The Wright flying boat is the result of the collaboration of the Wright Company and Mr. Grover C. Loening, Mr. Loening being responsible for the boat, whilst the wings are of the usual Wright type. It will be seen that this flying boat



The Wright flying boat.

differs considerably from those previously described, the main characteristics of this machine being the comparatively short boat, which does not carry the tail planes. These are carried on tail booms in a similar way to that employed in the usual Wright machine.

Perhaps the most interesting part of this machine is the boat hull itself, which is of novel design and construction. The hull is V-bowed, and the hydroplaning bottom consists virtually of two hydroplane surfaces, both presenting their most efficient angle to the water, while at the same time allowing for the best lifting angle of the planes, and the best thrust line combination. The rear plane has been studied with great care, since the angle of this plane for its highest efficiency requires consideration of the wave action induced by the front hydroplaning surface. The hull is of alloy metal, precaution being taken to make it impervious to the action of salt water by a special surface treatment. The hull, which is 3 ft. deep, 18 ft. long and 43 in. wide, weighs, fully equipped with engine bed, seats, dashboard and hood, 305 lbs. The hull is divided by bulkheads into six watertight compartments, and, since the motor and seats are set above the top of the watertight portion, the hull itself is really a sealed pontoon.

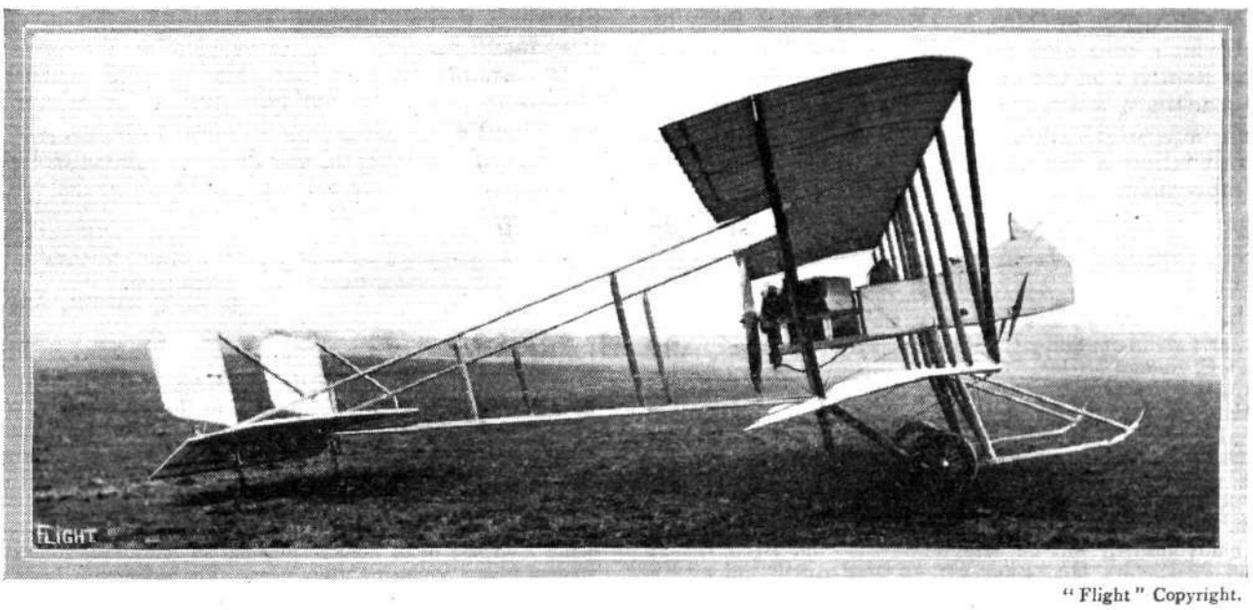
The seats are arranged side by side in front of the lower wings, inside a very neat cockpit, the arrangement of which is reminiscent of motor car practice. On a very neat dash in front of the seats is a complete set of instruments. Entrance to the cockpit is by side doors, and the upswept deck in front of the occupants' seats forms a very effective shield for the protection against wind and water spray. Instead of the usual "string" fitted on all Wright machines, a small flag is fitted at the bow, which serves to indicate the slightest tendency of the machine to side-slip. Double control levers are disposed in front of the seats, and the engine is controlled by a foot throttle combined with a hand lever throttle placed convenient to either operator. The engine, a 6-cylinder 60 h.p. Wright, fitted with an electric self-starter, is set low behind the seats and drives two propellers in the customary Wright fashion. The propellers are 8 ft. 6 ins. in diameter, and revolve at 600 revolutions per minute, at full throttle. The hand starting mechanism consists of a safety starter geared up from the engine. The fuel tanks are situated in a separate compartment in front of the engine.

The aeroplane part of this machine follows standard Wright lines, the wings being built up in the usual way, of ribs with spruce flanges, and web blocks over hollow spars. As usual, the front spar forms the entering edge of the main plane. The usual Wright control is fitted, wing warping being employed for the maintenance of lateral stability. The elevator, which is of the usual Wright flexing type, has been raised approximately to the thrust line, and has an area of 48 sq. ft. The vertical rudders and elevator are carried by the conventional Wright tail-outriggers, which are tapered and hollowed out for lightness.

In addition to the main float or boat, two auxiliary floats are fitted.

These are also of an alloy metal, and weigh 11 lbs. each. In order to facilitate manœuvring while on the water, a curious paddle control system has been applied. The paddles are hinged to the front spars near the lower wing tip, and are operated by a separate system of wires running from the cockpit. When it is desired to turn to the left, the left-hand paddle is lowered and, causing a drag on the left side, turns the boat in that direction, whilst the opposite procedure is followed for making a right-hand turn. The characteristics of the Wright flying boat, of which scale drawings appeared in our issue of January 17th, are :—

Span of boat planes	38 ft.	Total lifting surface	432 sq. ft.
Length overall ...	28 ft. 4½ in.	Total weight ...	1,200 lbs.
Chord	6 ft.	Speed ...	38 to 60 m.p.h.
Gap	5 ft.		

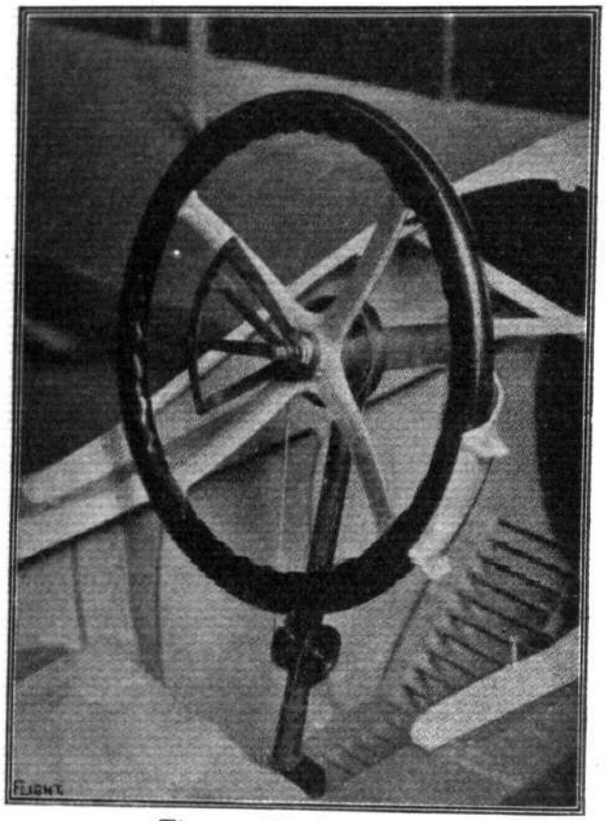


"Flight" Copyright.

The new Maurice Farman biplane at Hendon.

THE NEW WRIGHT CONTROL.

IT appears that the control system fitted as standard to all Wright machines since 1908, and forming one of the characteristics of these famous machines, is about to be discarded for a new type on more generally approved lines, at any rate, on certain machines to be supplied to the U.S. Government. The old type Wright control, whilst perfectly satisfactory when once mastered, had the disadvantage, that when flying for prolonged periods it was rather tiring for the pilot. As long distance flights are now such everyday occurrences, it has been thought advisable to change the whole type of control for one more suitable for flying under such conditions.

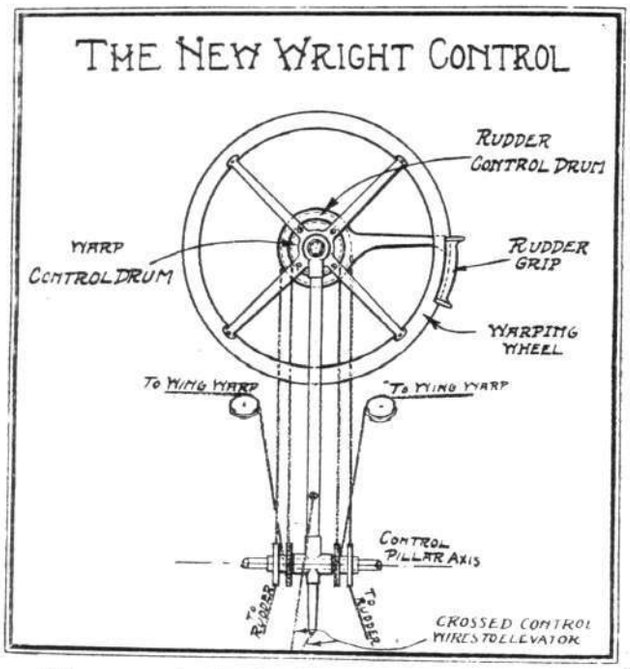


The new Wright control.

The type evolved has been adopted after very careful study of all existing systems, and the result is a form of control which embodies some of the features that are fitted as standard on the majority of English and Continental machines, whilst at the same time retaining that most characteristic feature of the old Wright control, *i.e.*, the combination of the warp and rudder control with a single movement.

From the accompanying illustrations, for which we are indebted to the *Aero and Hydro*, it will be seen that the new control consists of a rotatable hand wheel mounted on a vertical tubular column. Rotation of the wheel actuates the warp, whilst a to-and-fro movement operates the elevator.

This may be said to constitute the European part of the control. The Wright portion of the control is formed by a rudder lever mounted concentric with the warp wheel, and gripped by the pilot's right hand. One position of the small rudder lever may be said to be neutral, and a combined turn of the wheel and lever in that position has the double effect of warping the wings, and turning the rudder just sufficiently to counteract the drag on the wing tip with increased angle of incidence, thus acting similarly to the old type Wright control in correcting a bank. When it is desired to make a turn the small lever is advanced a little, and then rotated with the wheel, thereby turning and banking the machine at the same time.



Diagrammatic sketch of the new Wright control.

It certainly appears that this form of control is an improvement on the old type Wright control, and it is one which will make a strong appeal to pilots, who prefer not to, or are unable to, use their feet for controlling their machines.

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AERONAUTICAL SOCIETY OF GREAT BRITAIN.

Official Notices.

1. **Elections.**—Members: Richard T. Gates, Lieut. F. V. Holt, R.F.C., and Hermann Shaw. Assoc. Member: Norman C. Spratt. Student: C. Roland Taylor.

2. **Annual General Meeting.**—The annual general meeting of the Society will be held on Wednesday, March 18th, at 8 p.m., at the Royal United Service Institution, Whitehall, S.W. (Rule 39).

3. **Meetings.**—The ninth meeting of the present session will be held on Wednesday, March 18th, at 8.30 p.m., when Maj.-Gen. R. M. Ruck, C.B., will preside. Col. H. C. Holden, F.R.S., F.Ae.S., will read a paper on "Lessons Accidents have Taught."

The tenth meeting will be held on Wednesday, April 1st, at 8.30 p.m. Mr. B. C. Hucks and Mr. C. Gordon Bell will read a paper on "Three Years' Flying Experience."

4. **Aero Show at Olympia.**—At the forthcoming Aero Show the Society is arranging a series of popular scientific lectures to be given daily. Full particulars will be announced later.

B. G. COOPER, Secretary.

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Death of Herr Veeh.

AT Dusseldorf on the 27th ult., Herr Paul Veeh, the designer of the semi-rigid Veeh airship, died at the early age of 50. It is stated that his health broke down mainly as the result of disappointment at the failure—largely due to the lack of financial resources—of his projects.

The Schutte-Lanz Airship.

THE new Schutte-Lanz airship "SL2," with 23 persons on board, made a voyage of an hour's duration on Saturday, a course being steered from Cologne to Mannheim. The new airship has a capacity of 23,000 cubic metres, is 144 metres long, and the greatest diameter is 18½ metres.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

INTERNATIONAL AERO SHOW.

The International Aero, Motor Boat, Marine and Stationary Engine Exhibition, organised by the Society of Motor Manufacturers and Traders, supported by the Royal Aero Club, will be held at Olympia from Monday, March 16th, to Wednesday, March 25th, 1914.

Members of the Royal Aero Club are admitted free on presentation of their membership cards.

A room in the Princes Gallery will be placed at the disposal of the Members during the Exhibition.

An invitation has been extended by the Royal Aero Club to the Non-Commissioned Officers and Men attached to the Naval and Military Wings of the Royal Flying Corps to visit the Exhibition. During the visit the men will be entertained to luncheon by the Royal Aero Club.

Annual General Meeting.

The Annual General Meeting of the Members of the Royal Aero Club of the United Kingdom will be held on Tuesday, March 24th, 1914, at 4 o'clock, at 166, Piccadilly, London, W.

Committee.

In accordance with the rules, the Committee shall consist of eighteen members. Members are elected to serve for two years, half the Committee retiring annually. Retiring members are eligible for re-election.

The retiring members of the committee are :—

Col. J. E. Capper, C.B., R.E.	A. Mortimer Singer.
G. B. Cockburn.	T. O. M. Sopwith.
Maj. J. D. B. Fulton, C.B., R.F.A.	The Marquess of Tullibardine, M.V.O., D.S.O., M.P.
J. T. C. Moore-Brabazon.	Roger W. Wallace, K.C.
Com. C. R. Samson, R.N.	

Col. J. E. Capper, C.B., R.E., and Mr. Roger W. Wallace, K.C., do not offer themselves for re-election.

The following members have so far been nominated :—

Capt. R. K. Bagnall-Wild, R.E.	Norman Clark Neill.
G. B. Cockburn.	Com. C. R. Samson, R.N.
Maj. J. D. B. Fulton, C.B., R.F.A.	Sir John Shelley, Bart.
Maj. F. Lindsay Lloyd.	A. Mortimer Singer.
Robert Loraine.	T. O. M. Sopwith.
Fred May.	The Marquess of Tullibardine, M.V.O., D.S.O., M.P.
J. T. C. Moore-Brabazon.	

Any two members of the club can nominate a member to serve on the Committee, having previously obtained such member's consent. The name of such member so nominated, with the names of his proposer and seconder, must be sent to the Secretary in writing not less than fourteen days before the Annual General Meeting. Wednesday, March 11th, 1914, is the last day for the receipt of nominations.

Members are reminded that a ballot paper for the election of nine candidates to seats on the Committee of the Club will be forwarded to them at least seven days before the date of the Annual General Meeting.

Committee Meeting.

A meeting of the Committee was held on Tuesday, March 3rd, 1914, when there were present: Mr. Ernest C. Bucknall, in the Chair, Mr. Griffith Brewer, Major J. D. B. Fulton, C.B., R.F.A., Prof. A. K. Huntington, Mr. J. T. C. Moore-Brabazon, Mr. Mervyn O'Gorman, C.B., Mr. C. F. Pollock, The Marquess of Tullibardine, M.V.O., D.S.O., M.P., and the Secretary.

New Members.—The following new members were elected :—R. Spearman Farries, Lieut. Robert Crosby Halahan, R.N., and Lieut. Christopher Edward Maude, R.N.

Aviators' Certificates.—The following Aviators' Certificates were granted :—

738 John Percival Clark (Grahame-White Biplane, Grahame-White School, Hendon). Feb. 16th, 1914.

739 Sub-Lieut. Hans Acworth Busk, R.N.R. (Maurice Farman Biplane, Central Flying School, Upavon). Feb. 17th, 1914.

740 Lieut. Charles Edward Robinson, R.M.L.I. (Maurice Farman Biplane, Central Flying School, Upavon). Feb. 19th, 1914.

741 Lieut. Harry Macleod Fraser, R.N. (Bristol Biplane, Bristol School, Brooklands). Feb. 25th, 1914.

742 William John Stutt (Bristol Biplane, Bristol School, Salisbury Plain). Feb. 25th, 1914.

743 Capt. Alexander Ross-Hume (Vickers Biplane, Vickers School, Brooklands). Feb. 25th, 1914.

744 2nd Lieut. James Lee Jackson (Vickers Biplane, Vickers School, Brooklands). Feb. 26th, 1914.

745 Sub-Lieut. John Charles Spencer-Warwick, R.N.V.R. (Vickers Biplane, Vickers School, Brooklands). Feb. 26th, 1914.

The following Certificate was passed in France :—

Thomas Elder Hearn, (Blériot Monoplane, Blériot School, Buc). Feb. 10th, 1914.

Resignation of Mr. Roger W. Wallace, K.C.—The Committee received with regret the resignation of Mr. R. W. Wallace, K.C., from membership of the Royal Aero Club. The Committee directed that a letter of appreciation for the long and valuable service rendered by Mr. Wallace in the formation and progress of the Club should be sent.

British Altitude Record.

The report of the National Physical Laboratory on the barograph used by Capt. J. M. Salmond, R.F.C., in his flight on December 13th, 1913, at Upavon, has now been received. The Committee of the Royal Aero Club at its meeting on Tuesday last, March 3rd, 1914, granted the British Altitude Record for pilot alone to Capt. J. M. Salmond, R.F.C., the height accomplished being 13,140 feet. The aeroplane on which the flight was made was a B.E. Biplane fitted with a 70 h.p. Renault.

The British Height Records now stand as follows :—

Pilot Alone	Capt. J. M. Salmond, R.F.C. (B.E. Biplane)	13,140 ft.
Pilot and one Passenger ...	H. G. Hawker ... ... (Sopwith Biplane)	12,900 ft.
Pilot and Two Passengers	H. G. Hawker ... ... (Sopwith Biplane)	10,600 ft.
Pilot and Three Passengers	H. G. Hawker ... ... (Sopwith Biplane)	8,400 ft.

F. P. Raynham, on the Avro Biplane, has recently made attempts on these records, and the barographs are now being tested.

Warning to Aeroplane Pilots.

The following notice has been received from the War Office :—

"It is notified for the information of all aviators flying to and from Farnborough that Military kites are sometimes flown in the close proximity to the mooring mast and flagstaff West of the Queen's Hotel.

"These kites fly at heights varying from 2,000 to 600 ft., and are attached to a wagon on the ground by means of a wire cable. The kites are conspicuous, but the wire, which usually leaves the ground at an angle of 45 degrees to the perpendicular, cannot easily be seen, and special care is necessary in order to avoid it."

166, Piccadilly, W. HAROLD E. PERRIN, Secretary.

FROM THE BRITISH FLYING GROUNDS.

Royal Aero Club Eastchurch Flying Grounds.

MONDAY, last week, Henry Farman, 2 Sopwiths, 2 Shorts. Com. Samson making a fine flight on Short 3, 80 h.p., reaching about 9,000 ft.

Tuesday, Avro and Blériot up, the latter, Lieut. Briggs pilot, going up about 11,000 ft.; 2 M. Farmans. Com. Samson left on the new 80 h.p. De Dion-M. Farman on long distance flight, but had to land at Yarmouth; also 2 Sopwiths out.

Wednesday, 50 and 100 h.p. Avros, 2 Sopwiths. Com. Samson returned from Yarmouth on M. Farman. B.Es. and 2 Shorts up.

Thursday, slight fog in morning, 2 Avros, 2 Sopwiths, Shorts and B.Es. out.

Friday, 2 Avros, 2 Sopwiths, 3 Shorts, Caudron, 2 H. Farmans, 2 M. Farmans and B.Es. up.

Saturday, 2 Sopwiths, 3 Shorts, 2 Avros, Caudron, 2 B.Es., Henry and M. Farman. Lieut. Davies flew to Cambridge with L. S. Andrews as passenger, returning the same day. Com. Samson on new B.E. made a fine flight reaching about 12,000 ft.—probably a record for Eastchurch.

Civilian Flying.—Tuesday, the Hon. M. Egerton made two fine flights on his 50 h.p. Short biplane. He was again out Wednesday on his machine, making two fine flights. Mr. Gordon Bell was also up on the 100 h.p. Short sociable with Mr. Fairey as passenger.

Friday, the Hon. M. Egerton had two flights. Mr. Fairey up

on 100 h.p. Short, with Mr. Gordon Bell as passenger. Prof. Huntington made a fine flight on his biplane.

Sunday, the Hon. M. Egerton made three fine flights. Prof. Huntington two flights, the first in a very choppy wind, reaching a height of about 2,000 ft. This machine seems to have improved wonderfully of late, flying better than it has ever done before.

Brooklands Aerodrome.

—Monday morning last week, the Bristol and Vickers Schools were at work, and in addition Mr. Barnwell was out on the 70 h.p. Vickers biplane, and Mr. Alcock for an hour's flight up to 4,300 ft. on the Maurice Farman (100 h.p. Sunbeam) biplane. In the afternoon Mr. Raynham flew to Eastchurch on the new 50 h.p. Avro biplane and delivered it to the Admiralty after putting it through the usual tests.

The Vickers and Bristol pupils were hard at work Tuesday morning. Mr. Alcock made a couple of good flights in the morning,

Mr. J. P. Clark, who has passed his *brevet* tests at the Grahame-White School, Hendon.

one up to 4,000 ft. with Mr. Dukinfield Jones as passenger, and afterwards flew to Shoreham in 40 mins. with a passenger, arriving over Shoreham at an altitude of 7,500 ft., and making a well-judged landing into the aerodrome at that place. The new Martinsyde monoplane was being further tested with Mr. MacGeagh Hurst as a passenger. Mr. Dukinfield Jones was out on his Flanders biplane. Mr. Vincent Waterfall had his first trip on the new Martinsyde monoplane for about half an hour. In the afternoon Mr. Dukinfield Jones was out with passengers (Messrs. T. H. England and Warwick Wright). Mr. Alcock returned with his passenger from Shoreham in 45 mins. at 4,000 ft. Herr Roempler made several flights on the D.F.W. biplane. Mr. Barnwell took up a passenger on the Vickers gun-carrying biplane, on which several flights were made, blank firing being indulged in. An 80 h.p. Gnome-engined Sopwith tractor biplane fitted with dual controls (for school work) arrived. The Vickers pupils were practising on the No. 5 Vickers monoplane.

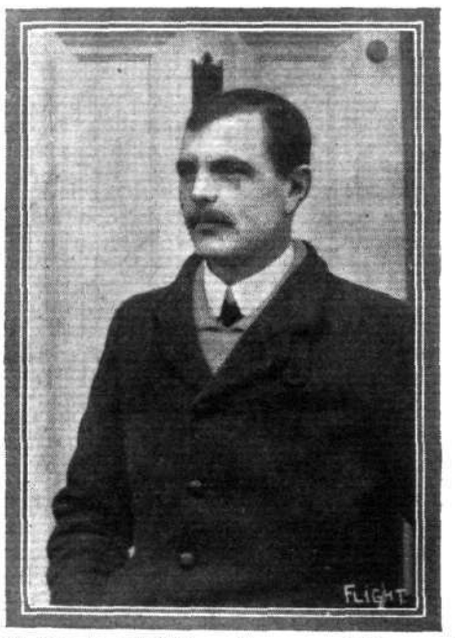
On Wednesday morning the Vickers pupils were at work, and Mr. Halford was out for a test flight on the Bristol biplane, after which one of his pupils, Lieut. Fraser, R.N., passed his *brevet* tests, attaining an altitude of 700 ft. Mr. Dukinfield Jones was out on the Flanders biplane. In the afternoon the Vickers pupils were again busy, one of them, Capt. Ross Hume, passing his *brevet* tests and reaching 800 ft. for the altitude portion.

Thursday was a busy day. In the morning the Vickers School was at work. Mr. Dukinfield Jones took Mr. Holyoake up to 1,800 ft. Two Vickers pupils passed their *brevet* tests in excellent style, Lieut. Lea Jackson, Connaught Rangers (to 2,100 ft. in the altitude test), and 2nd Lieut. Spencer Warwick, R.N.V.R. (to 1,000 ft. in the altitude test). Mr. Alcock made a 30 minutes' flight with a lady passenger to 3,000 ft., afterwards taking Capt. Hume to 3,300 ft. Mr. Dukinfield Jones was flying his Flanders biplane. Mr. Hinshelwood took the No. 5 Vickers monoplane up to 2,500 ft. Lieut. Joubert de la Ferte arrived on a two-seater Blériot from Netheravon *via* Arundel. In the afternoon, Mr. Alcock took up Messrs. Hinshelwood and F. W. Ball for cross-country trips at 3,000 ft., afterwards taking Mr. Phillips up to 3,500 ft. in a 45 minutes' flight. The New Martinsyde monoplane was out again, Capt. Ross Hume going as a passenger. The Vickers pupils were at work. Mr. Dukinfield Jones took Miss Spencer Warwick up to 1,700 ft. Mr. Halford was out on a Bristol biplane. Mr. Marty came over from Hendon with a passenger on an 80 h.p. Le Rhone-Morane-Saulnier.

On Friday afternoon Mr. Barnwell took up several Vickers pupils on the 70 h.p. Vickers biplane. Mr. Alcock, in the course of an hour's cross-country flight at 4,000 ft. with a passenger, visited the Richmond district, afterwards taking out another passenger at 2,000 ft. Mr. Raynham was flying the 80 h.p. Avro biplane. Mr. V. G. Blackburn was testing the engine of his 40 h.p. A.B.C. biplane. Capt. Beatty called with a passenger on B.E. 329. King Manoel of Portugal visited the aerodrome in a car, and was much interested in the flying. The Vickers pupils were out on different machines, and Mr. Elsdon was up on the No. 5. Vickers monoplane. Herr Roempler was flying the D.F.W. biplane, making a number of flights. Mr. Halford was busy with pupils on Bristol biplanes. Mr. Barnwell was flying the Vickers Blériot, and Mr. Hinshelwood the No. 5 Vickers monoplane.

Mr. Barnwell was further testing the Vickers gun-carrying biplane on Saturday. The new Martinsyde monoplane was also out. Mr. Raynham on the 80 h.p. standard type Avro tractor biplane attacked the English altitude record, reaching a height of 13,120 ft. (4,000 metres), after being in the air for 78 mins., another excellent performance which will be considerably improved on by him with better weather conditions. Mr. Alcock made several flights on the Maurice Farman biplane. Mr. Raynham was out again on the 80 h.p. Avro biplane, making a number of fine flights. Herr Roempler made one or two flights, solo and with passengers, on the D.F.W. biplane. Mr. Jones was out on the Flanders biplane.

On Sunday a great number of people took advantage of the delightful weather to visit Brooklands, and witnessed some fine exhibition flights. Mr. Raynham was first out on the Avro biplane, followed by Mr. Alcock on the Maurice Farman biplane, Mr. Dukinfield



Lieut. F. B. Binnie, R.F.A., who secured his certificate on a Bristol biplane last month under the tuition of Mr. F. W. Merriam and Mr. Frank B. Halford.

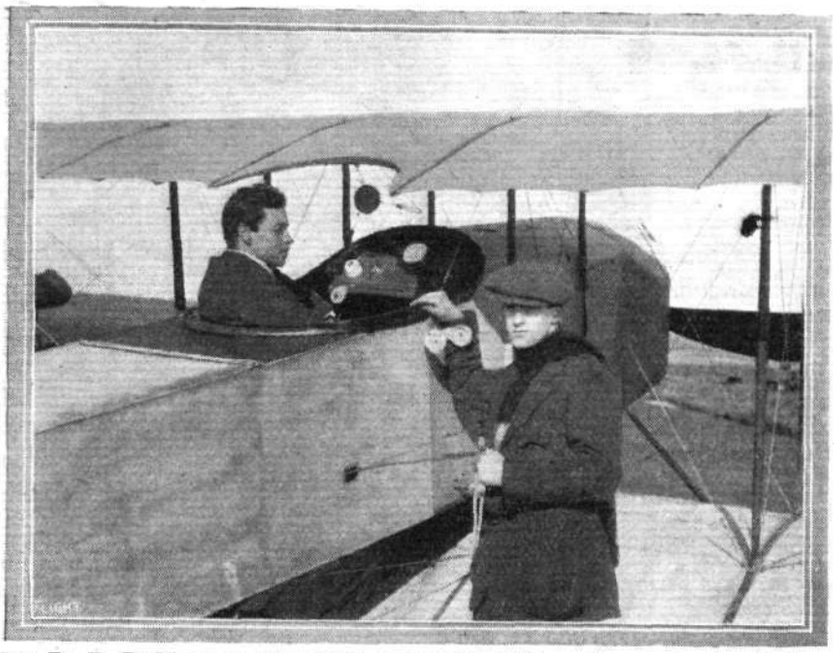
Jones on the Flanders biplane, Messrs. Elsdon and Knight with and without pupils on Vickers biplanes, and likewise Mr. Halford on Bristol biplanes. The winner of the ballot for the free passenger flight, Mr. Watson Munro, Crouch End, London, was taken up by Mr. Alcock on the Maurice Farman biplane.

Bristol School.—Last week, Lieut. Fraser made several solo straights and circuits, practising for his *brevet*, which he obtained on Wednesday, flying very steadily throughout. Sergt. Deane (new pupil) was taken by Halford for his first tuition flights.

The weather during the week at Brooklands was much against tuition being given, winds and thick fogs being the chief causes.

Vickers School.—Monday last week, Barnwell and Knight on biplanes with Capt. Ross Hume. Lieut. Jackson and Capt. Ross Hume solos.

Barnwell, Elsdon and Knight instruction Tuesday to Lieuts.



Mr. R. E. B. Hunt in the pilot's seat of his 50 h.p. Gnome tractor biplane, designed by Mr. E. L. Gassler (standing by the machine) and built by the Eastbourne Aviation Co., Ltd.

Mansergh and Jackson, Mr. Duncan, Mr. Hurst, Mr. Spencer Warwick and Mr. Wilberforce. Lieut. Mansergh solo on biplane. Mr. Spencer Warwick solo. Messrs. Morgan and Webb on No. 5 mono. Knight on biplane with Mr. Fairey.

Wednesday, Barnwell on biplane 26 with passengers. Knight on biplane 20 with Lieut. Jackson, Capt. Ross Hume and Mr. Wilberforce. Capt. Ross Hume and Mr. Spencer Warwick solos. Capt. Ross Hume then took excellent *brevet*. Lieut. Jackson solo. Barnwell and Mr. Fairey.

Elsdon on biplane Thursday with Mr. Wilberforce ; Lieut. Jackson and Mr. Spencer Warwick solos. These two latter pupils then took their *brevets* in very good style. Mr. Hinshelwood on No. 5 mono., Barnwell on biplane 26 with passengers. Elsdon and Knight with Mr. Hurst, Mr. Dawson, Mr. Wilberforce and Mr. Fairey.

Friday, Barnwell on biplane with passengers, Knight with Messrs. Hurst and Fairey. Messrs. Hinshelwood and Webb on No. 5 mono. Barnwell and Elsdon on Blériot mono. Saturday, Barnwell on gun-carrying biplane.

Sunbeam Activity.—On Monday, February 23rd, J. Alcock, on the Maurice-Farman fitted with 100 h.p. Sunbeam engine, made a flight across country with passenger for one hour at 4,300 ft. Next day two flights across country at 4,000 ft., one with Mr. Dukinfield Jones as passenger, also flew to Shoreham with Mr. C. Wheeler, arrived there at 7,500 ft., also flew to Brighton and Worthing with passengers, and then back to Brooklands at 4,000 ft.

On Wednesday, 25th, short flight with passenger at 1,500 ft.

Thursday, 26th, across country with lady for half an hour at 3,300 ft., and then with Capt. Hume across country at 3,000 ft., also with Mr. Hinshelwood, Ball and Phillips, all at 3,000 ft. across country.

Friday, 27th, several cross-country flights with passengers at 2,000 ft., and one to Richmond and back at 4,000 ft.

Saturday, 28th, several flights with passengers at 2,000 ft.

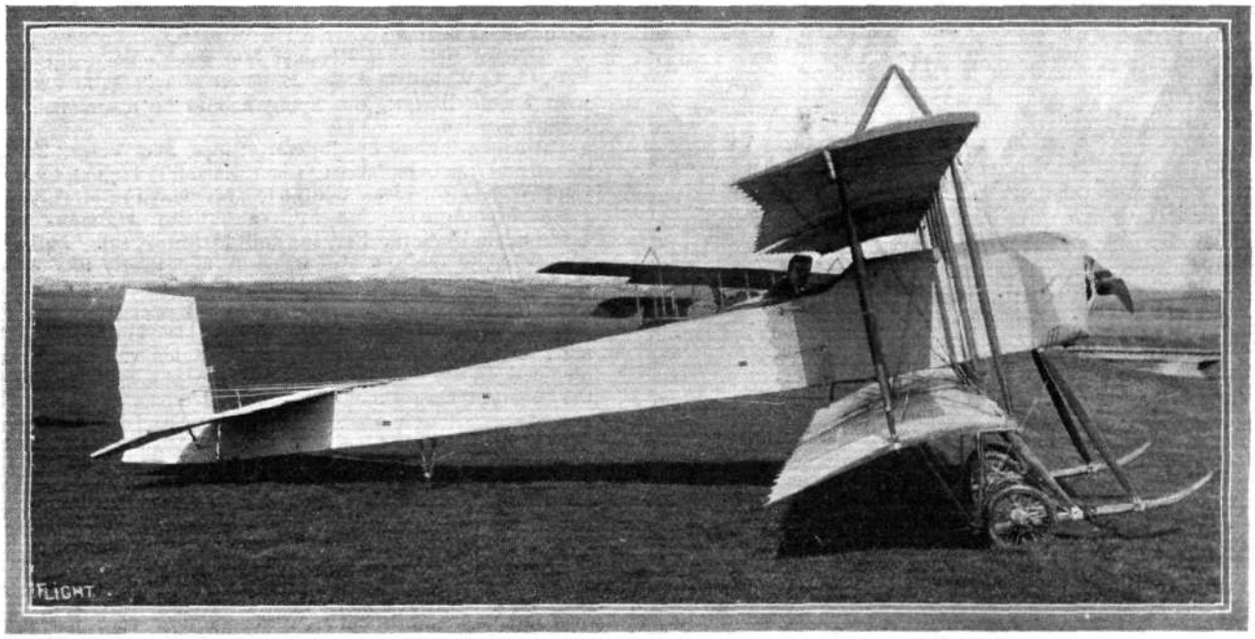
Sunday, March 1st, flying all the afternoon taking several lady passengers, also the winner of the free ballot flight.

Eastbourne Aerodrome.

ON Tuesday, last week, Fowler took a cross-country stunt on the Bristol, and on his return went up with Mr. Gwynne (in the pilot's seat) for three flights. Wednesday morning, Fowler went up, but found it too bumpy for pupils. An improvement took place in the afternoon, when Fowler tested a new E.A.C. biplane, and then took up Mrs. Salmon for four lessons. Gassler was out solo, and also with Mr. Gwynne twice. Thursday morning, Fowler solo, Fowler and Mrs. Salmon three flights, Gassler out on the 50 h.p. Blériot. In the afternoon, Fowler had a stunt on the Blériot, and then took Mr. Gwynne up twice on the E.A.C. biplane. Gassler was up with Mrs. Salmon four times.

Friday morning, after Fowler had tested the E.A.C. 'bus, he took Mr. Gwynne up twice, followed by Gassler on the Bristol. Mr. Hunt then flew his first solo on the 50 h.p. Blériot, handling it well and landing nicely. In the afternoon Fowler was out again with Mr. Gwynne three times. Gassler took Mrs. Salmon out again, and then Mr. Gwynne made his first solo on the E.A.C. 'bus, both flying and landing being well carried out. Mr. Hunt then went for a short cross-country flight on the Blériot.

Saturday morning Gassler was first out on the Bristol, and on his return, Fowler on the E.A.C., and Mr. Hunt on the Blériot, both flew to Pevensey to a meet of the Harriers, returning before lunch. In the afternoon, Mr. Hunt flew to Shoreham, where he put his Blériot up for the night. He flew back on Sunday morning. On



The 50 h.p. Gnome tractor biplane built by the Eastbourne Aviation Co., Ltd., to the order of Mr. R. E. B. Hunt, who is seen in the pilot's seat. This machine was designed by Mr. E. L. Gassler and has been flown both by Mr. Hunt and by Mr. Gassler.

Monday he flew to Bexhill, and in landing in a small field, had the misfortune to sightly damage his tail plane.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School. — Monday, last week, Prince Sapieha rolling, afterwards doing straights with Instructor. Messrs. Barrs, Barker, Cowley, Edridge-Green, Moore, Graham, Major Piercy and Lieut. Lindop, straights with Instructors Birchenough or Cripps in passenger seat. Mr. Edridge-Green right-hand turns, afterwards circuits, &c. Messrs. Bjorkland, Howarth, Lillywhite and Stewart solo circuits, &c.

Messrs. Barrs and North, straights, Tuesday, with instructor in passenger seat, afterwards circuits. Messrs. Parker and Lieut. Lindop, straights with Instructors Birchenough and Cripps, afterwards Lieut. Lindop, Messrs. Stewart, Edridge-Green, Moore, Francis, Bjorkland and Graham, solo straights and circuits. Messrs. Moore, Parker, Piercy, Kershaw, Cowley, and Prince Sapieha, straights with Instructors Cripps, Strange and Howarth.

Wednesday, Lieut. Lindop and Mr. Graham, straights with Instructors Strange and Howarth in passenger seat, afterwards alone. Messrs. Kershaw, Parker, Cowley, Tapps, Moore, straights, with Instructors Birchenough and Strange in passenger seat. Messrs. Barrs, Bjorkland and Edridge-Green, solo circuits, spirals, &c.

Thursday, Messrs. Kershaw, Tapps, Cowley, Piercy, Parker, Moore, Prince Sapieha, straights with Instructors Strange and Howarth. Mr. Graham, straights, solo circuits, &c., Messrs. Barrs and Lieut. Lindop solo circuits.

Messrs. Moore, Cowley, Kershaw, Tapps, Prince Sapieha straights Friday with Instructors Birchenough, Cripps and Strange. Messrs. Graham, Barrs, Bjorkland, solo circuits, &c.

W. H. Ewen School.—Monday last week, school out at 7 a.m. under the instruction of Mr. F. W. Goodden and Mr. W. T. Warren. After test flight by Mr. Goodden on *brevet* machine, Mr. Murray did circuits and Mr. Bankes-Price half circuits. Mr. Warren test flight on 35 h.p. Caudron No. 1, Messrs. G. Carruthers, Garvin, Wiggett and Curtis rolling and straights.

Thursday, at 4.30 p.m., Mr. F. W. Goodden out with pupils on *brevet* machine. Mr. Murray half circuits and Mr. Bankes-Price straights. On 35 h.p. Caudron No. 1 Mr. G. Carruthers doing straights, Mr. Garvin straights, Mr. Curtis rolling and straights.

At 7 a.m. Friday morning, Mr. Warren test flight on 35 h.p. Caudron No. 1, after which Mr. G. Carruthers did good straights, and Mr. Curtis rolling and straights.

Hall School.—Messrs. H. Gering, A. F. Arcier, A. L. Brookes about six straight flights each, Monday, last week. E. Palmer (new pupil) making exceptionally quick progress, doing very creditable flights at low altitudes. J. L. Hall flights at frequent intervals accompanied with various passengers.

"Flight" Copyright.

Mr. J. L. Hall in the pilot's seat of the Avro at Hendon.

"Flight" Copyright.

The landing chassis of the new Sopwith biplane at Brooklands.

Tuesday, 7 a.m., Virgilio, H. Gering, A. L. Brookes six semi-circuits, A. F. Arcier half-dozen straight flights, E. Palmer half straights at low altitude, the other pupils attaining heights of 40 ft. and upwards. J. L. Hall took many passengers on Avro, including his own sister. In afternoon, school work resumed. Brookes, Gering, Arcier, Virgilio half circuits. E. Palmer straights. H. C. G. Allen, who had been making good progress on 35 h.p. Blériot, miscalculated distance on landing and injured landing chassis, breaking several struts.

All pupils out Wednesday at 7 a.m., Messrs. E. Palmer, Virgilio, Gering, A. F. Arcier, Brookes making numerous left and right-hand turns. Practice was terminatad by Virgilio pancaking machine from 40 ft., owing to machine belonging to another school obstructing his landing. Friday, J. L. Hall out on Avro testing alterations to Gnome. On Saturday exhibitions and pylon racing, and Sunday exhibitions in strong wind.

Salisbury Plain.

Bristol School.—Monday, last week, Voigt up with Capt. Fell, Capt. Walcot and Mr. Stutt on several flights, and Jullerot with Lieut. Barratt, but flying had to be abandoned owing to bumpy weather.

Passenger tuition by Jullerot, Sippe and Voigt, Tuesday, on school and tractor biplanes to Lieut. Barratt (7 flights), Capt. Fell (6), Capt. Walcot (6), Lieut. Bolitho (7), Mr. Hay (3), Mr. Chambers (3), Lieut. Myburgh (2), Mr. Stutt and Lieut. Harman, solo flights being made by Capt. Fell (2) and Mr. Stutt (2). Full advantage was taken of the splendid weather, and nearly fifty flights were made during the day.

Wednesday, Jullerot and Voigt gave passenger tuition to Lieut. Barratt, Lieut. Bolitho, Capt. Walcot, Mr. Hay, Lieut. Harman, and Capt. Fell. Mr. Stutt flew for his certificate, which he obtained, flying in splendid style. Busteed made several tests of the new type Bristol tractor.

Passenger tuition was given Thursday to Lieut. Barratt, Lieut. Myburgh, Capt. Fell, Lieut. Bolitho, Capt. Walcot, Mr. Chambers and Mr. Hay; solo flights were made by Lieut. Harman and Capt. Fell.

Friday, owing to fog and wind, no tuition was possible until the afternoon, when Capt. Walcot, Lieut. Barratt and Lieut. Bolitho were taken on several flights.

Saturday Voigt made a test with Lieut. Barratt as passenger, but found weather conditions unsuitable for tuition.

Shoreham Aerodrome.

Pashley School.—Tuesday, Wednesday, Thursday, Friday and Saturday last week tuition throughout these days behind the instructor. Mr. Gray has made excellent progress, and now has control when up with instructor. C. L. Pashley instructor for the week.

FLIGHT

ARMCHAIR REFLECTIONS.

By THE DREAMER.

Fear at High Altitudes.

THE question as to whether pilots experience any sense of fear or become possessed of strange fancies akin to fear, when at high altitudes, is a very interesting one, and has been brought to my mind by reading an article in the *Penny Magazine*, written by J. A. Drexel, the well-known pilot, who did much flying in this country in the early days, and whose experiences as there set down may be taken as being those of a man not likely to be led into romantic expressions for the sake of flowery journalism.

I have never been at a high altitude myself, not being a pilot, and never having had the luck to be invited to share the pleasure of a trip to the stars when records are being sought, but I can quite believe that many sensations foreign to a man when on the earth may assail him when many thousands of feet in the air and away from everything that has become familiar.

Mr. Drexel says that many pilots have an awful dread that their engine is going to stop, although this has never worried him to any extent, even though it has happened on several occasions. Experience has shown us that it does not matter so very much if the engine does stop, providing the machine is somewhere near or over an aerodrome, and many pilots now deliberately stop their engines as part of their regular flying.

Referring to his own flying, Mr. Drexel gives an instance of an attack of nerves he once experienced, when try as he might, he could not get away from the idea that the tail of his machine had become detached from the *fuselage*, and was dangling by the wires somewhere behind. He could, in his imagination, distinctly hear the breaking of the woodwork, and although the machine was still flying in proper order, he could not prevent himself glancing round over his shoulder to assure himself that all was well. Again and again on the same flight did the same fearful thought assail him, and each time did he become still more certain that this time there was no doubt about it.

Others, Mr. Drexel writes, become possessed of a certainty that one wing is breaking away, and in their fear they can plainly see it being forced gradually upwards, and wait for the moment when it shall break off altogether, and send them hurtling downwards.

In stating his own experiences, Mr. Drexel opens up a subject which should be well worthy of discussion, and one on which the views of pilots would be welcome.

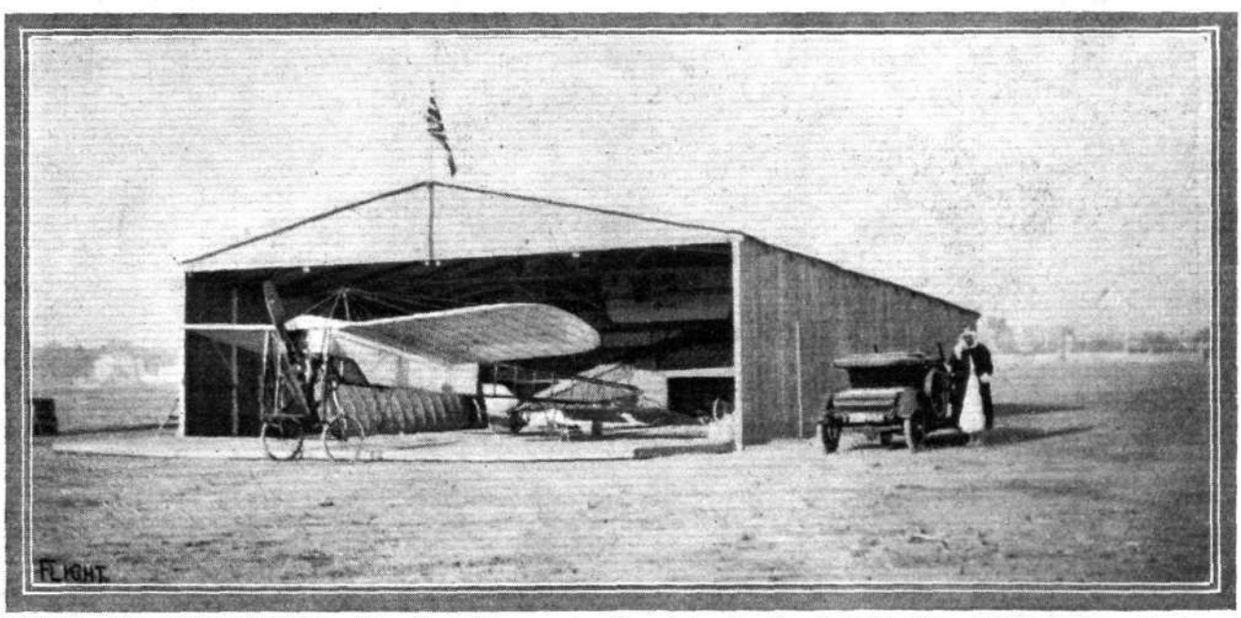
It would not be detrimental to the opinion held of any pilot, should he admit that he had some kind of feeling akin to fear, or that he became possessed of strange fancies when at high altitudes. It would not mean that he was really afraid to be up there—nothing that could be construed into what we know as "cold feet."

Take for instance the pilot who goes up to say, 15,000 ft., which should be quite high enough for our purpose, though I can quite understand that to add another 5,000 to this, must make all the difference, but 20,000 ft. is an exceptional altitude to-day, whatever it may become in the future.

Imagine him starting away from the aerodrome to attempt this altitude. For the first two or three thousand feet his surroundings are familiar. He can see the aerodrome and objects on the earth, and having been so many times at this altitude before, he is quite comfortable. Higher and higher he goes till some seven or eight thousand feet are registered, and things begin to appear different. He is probably by this time well above the clouds, and can see very little, if anything, of the earth beneath. Here the sense of loneliness begins to make itself felt, and it is possible that having very little else to occupy his mind, he will begin to think of things that were better not thought of at all.

Everywhere is space, emptiness, blankness. He is but a speck in the vast expanse. By standing on the ground and watching a machine at a great height, we are able to judge by the apparent size of it, and by subconsciously comparing it with familiar objects near us, to estimate the altitude reached.

At great altitudes, when the earth has faded from sight, and nothing but space remains, a pilot is able, by looking around him into the illimitable expanse, to form an im-



FLYING AT HELIOPOLIS.—The first Hangar in Egypt to fly the British flag. The machine in front is Mr. W. Oswald Watts' 60 h.p. Blériot single-seater, and behind inside may be noticed Marc Pourpe's Khartoum 60 h.p. Morane-Saulnier on which, half an hour after the photograph was taken, he started away and flew to Suez in 1 hr. 10 mins., very fine going.

pression of the infinite smallness of himself and his machine, and thus is able to, as it were, see himself as though he were a separate being standing away and looking on from a great distance, and possibly becomes overpowered with the sense of being so absolutely alone, dependent entirely on his engine and the frail structure he sits in.

Up, up he goes—higher and higher slides the little pen on the chart of his barograph—the little point that means so much to him, and which he watches so intently, hardly taking his eye from it for a moment. Ten, twelve, fourteen thousand feet! The air becomes more rarified, the brain becomes exhilarated, there is a feeling of lightness about the whole body. With the reduction of the atmospheric pressure, the blood courses more rapidly to the brain, the pulse beats quicker, there is a dawning sense of hysteria. Then arises an inclination to sing and shout, or, perhaps, even an almost irresistible impulse to get out and walk about on the wings.

At a still greater altitude, when the air becomes even more rarified, this light feeling is probably followed by one of lassitude—a reaction to the previous excitement. The brain becomes dull, strange fancies take possession of it, and it is conceivable that a man may now have thoughts, which, under the circumstances, are more likely to take the form of fears than the previous glorious exhaltation. He is up thousands of feet above the earth. Above him, as he looks up, is space—blue, indefinite space, unmeasurable even to the imaginative mind.

Below—thousands of feet below, is a sea of little white clouds, looking for all the world like nothing so much as millions upon millions of white, toy air balloons with the sun shining on them. Somewhere down through these fleecy clouds is Mother Earth, where he left his fellow man when starting on this awe-inspiring journey.

All around, on every side there is nothing to be seen. It is, perhaps, as well that the noise of his engine prevents him knowing whether there is any sound beyond that which it is itself creating, to break the silence. Could he but know, he is in absolute silence so far as outside sounds are concerned—a silence that, could he but stop his engine for a few moments, and hover in the air, would be absolutely terrifying.

Still higher, and yet even higher he may force his machine, and all the previously explained sensations become intensified. Is it then not possible, or even probable that at an altitude similar to that pictured a pilot may become possessed of fears that have no foundation—fears that are born entirely of his own imagination, and having been born, shall become more and more realistic, and, attacking the nerves when they are in no fit state to fight against them, shall take possession of, and dominate the whole mind to the extent that the pilot shall see with his very eyes, the thing which he dreads taking place, with no power to prevent it.

What a relief to take a breather again after even these imaginary sensations—the reality must require a good many breathers, I should say, in the early days of practical experience, and I would like to invite pilots who have reached anything like the altitudes mentioned in this imaginary flight, the description of which has been here so feebly attempted, to write to FLIGHT and give the benefit of their experience to the world at large.

We are all wonderfully interested, and would like to know, and having no other possible means of knowing except through those who have been there, would welcome letters on the subject. It appeals to me as being possible that pilots may have a lot of light to throw on the subject, but that they dread to say anything about it, for fear they might be thought less of from the point of view of those not knowing better, but it is more than probable, that at the altitude mentioned, a man has not complete control over himself, and no man can be blamed for anything he may fancy under circumstances so irresistibly powerful as to take partial possession of his faculties.

Mr. T. Elder Hearn, who has just taken his *brevet* in France, after 4 hrs. 40 mins. work at the Blériot School at Buc. He writes that after some further practice he intends to try the "loop" and thereby score a record for rapid advance in piloting, and hopes to follow it up immediately afterwards with a flight from Paris to London.

FLIGHT

BRITISH NAVAL AERONAUTICS.

ON Monday the House of Commons went into Committee of Supply, Mr. Whitley in the Chair, and on a Supplementary Estimate of £2,500,000 for various naval services.

After dealing at length with the question of oil fuel, Mr. Winston Churchill said that the second cause of the increased expenditure was the new programme of aircraft, costing £250,000 in the present year. We were very late in starting the British air-service both by sea and by land. A year ago we were very far behind France and Germany in aeroplanes, and were practically unprovided with airships. He believed it would be found that their caution and tardiness in airship construction would ultimately be fully justified. Great progress had, however, been made in every direction by the British air-service during the year, and if the House of Commons assented to the provision for 1914-15 which the Government recommended, and which they would ask for at the proper time, very considerable results, not only of a positive but of a relative character, ought to be attained by the end of that year. The naval air-service had now reached a point when, although still in an experimental stage, it had already begun to share the military responsibilities of the Royal Navy, and was about to become an effective factor both in Fleet operations and in coast defence. In these matters the initial outlay was very heavy. Everything had to be provided at the beginning—sheds, plant, appliances, land, as well as the actual instruments of aviation. Although the expense in the first few years would be heavy, and although in its embryonic stage they could not point to any specific reduction under other heads of naval charge which could be made in consequence of the development of the air-service, yet he was sure that ultimately the development of the naval air-service would be productive of considerable reductions in other classes of naval weapon. As the result of a thorough examination of what had been and what was being done by other countries, and of the numbers and quality of aircraft, both aeroplanes and airships, already possessed by them, and in view particularly of the considerable new German naval air programme, which were announced after the British Estimates of last year were framed and presented to the House, in view of all these facts, his right hon. friend the Secretary of State for War and he had felt it their duty last July, upon the representations of their expert advisers, to make further proposals to the Cabinet for increasing the air-service, and after a very full and, as the House may believe, a very severe and searching investigation of the whole subject, his right hon. friend and he both obtained authority to take what they considered the necessary measures. So far as the Admiralty was concerned, the principal expense has been caused by the provision of airships and airship sheds, and the necessary stores and appliances for working airships, in all of which they were almost totally deficient.

A considerable new programme of airship construction had been approved, contracts for which had been already made, and are being and will be executed as fast as possible. They considered it essential, not merely to obtain airships by purchase from abroad, but to interest British constructors in their manufacture, thus bringing to this country, if he might use a phrase which would give satisfaction to hon. members opposite, the art as well as the article. A contract has been made with Messrs. Vickers for one large and three smaller non-rigid dirigible airships. The rigid, which was approximately a Zeppelin of the latest type — he meant on the same lines and of the same description as the last type of Zeppelin — was being built in England, and a considerable portion of the three non-rigids were being constructed here also. A second large Astra Torres airship of the non-rigid type had been ordered in France, and would shortly be delivered, and a contract had been signed with Messrs. Armstrong for three large semi-rigid airships of an Italian design, which afforded great promise, called the Forlanini. The first of these would be constructed abroad, and the others would be made by Messrs. Armstrong in this country. Large sheds had had to be constructed by both firms at a heavy capital outlay, and a portion of that charge was, of course, reflected in the price of the ships. They were building two additional airship sheds, one in the Medway near Chatham, and the other in Norfolk. This programme, though considerable, was modest in comparison with what is being and had been done abroad, and they could not pretend that it competed effectively either with French or German achievements and exertions. Having regard, however, to their great and growing superiority in the seaplane and in all connected with its development, they considered that the additional airship provision which they now asked the House to approve is, under present conditions, sufficient. Notice of this new programme was given to Parliament on July 17th last, but the Estimates had not been framed, nor were the details settled when Parliament rose, and this was the first occasion when he could present them to the House. The total cost of the eight airships and their sheds is £475,000, of which approximately £200,000 falls in the currency of the present year. All this, together with the additional expenditure on seaplanes, makes a total of £260,000, which constituted the second main cause of the supplementary estimate he was now charged with presenting to the Committee.

During the debate, Sir Gilbert Parker said that as regards aircraft the Estimates represented a reprehensible neglect during the last two years on the part both of the Admiralty and the War Office in awaiting the activities of other nations in order to tell them what to do. Though they had reaped the advantage, it had been at the expense of national prestige, and neglect of this kind might result some day in national catastrophe.

In the course of a reply to the debate on Tuesday, Mr. Churchill said that some members had complained that the House was not properly informed of any intention on the part of the Government to embark on the new proposal with regard to aircraft. Although the Cabinet assented in principle to an increased programme of aircraft before the House rose last August, the details of the programme has been greatly varied since, and had he presented a hard and fast estimate to the House then, he should now be adding to his many explanations of discrepancies a further considerable batch.

MR. B. C. HUCKS AT OXFORD.

OXFORD took full advantage of the opportunity of seeing Mr. B. C. Hucks last week-end. On the first day—Thursday—of the meeting the roads leading to the aerodrome suggested a wholesale "trek." At 3.30 Mr. Hucks took out his two-seater and gave a fine demonstration of fancy flying for about 10 minutes, finishing up with a spiral descent from 3,000 feet. Owing to the landing ground being rather restricted, Mr. Hucks had to practically land in the next field and hop over a hedge into the actual aerodrome. He then took on board a passenger, and amused himself by flying along the Isis, through Oxford, where the crews were practising. A passenger flight with a lady followed, and the "looper" was then brought out. Getting into the air after a run of a little over 50 yards, Mr. Hucks completed six perfect loops and an upside-down flight. The next passenger was another lady, and then Mr. Hucks took up the Chief Constable of Oxford.

On Friday, Mr. Hucks again commenced his demonstrations with steeple-chasing, which proved as popular and thrilling as the looping.

Two undergrads had booked flights, but just as the first was about to step into the machine, a vigilant Proctor appeared on the scene and drew attention to an order that no undergrads must take part in any flying demonstration that week. After a "solo" on the two-seater, Mr. Hucks completed 11 loops on the "looping" machine and subsequently made a trip round the city on the two-seater.

On Saturday the crowd was immense, and when Mr. Hucks arrived on his car crowds were still going in, and it was gratifying to notice that the number of people with "hedge tickets" was small. At 3.45 Mr. Hucks put up a flight on his two-seater, during which it started to drizzle, but not sufficient to interfere with the demonstration.

On the "looper" he accomplished seven loops, and on one occasion he took his right hand off the control when the machine was upside-down and completed a loop, waving his arm in the air, presumably to show how easy and safe it all was. Then a B.A., who had been debarred from flying on Thursday, turned up with a written permission, and was given a long high flight, during which the machine encircled his particular "house."

After the looping on Saturday, Mr. Hucks had arranged to fly over to Port Meadow in order to pick up a passenger whose weight did not permit him starting from Swimming Mead, but on arriving at Port Meadow he found the passenger in the wrong field, so he had to fly back empty.

The visit of Mr. Hucks to Oxford should do a lot to revive interest in aviation in this quarter, for each display was well attended by members of the 'Varsity, Professors and Principals. Everyone seemed particularly impressed with Mr. Hucks' handling of both the two-seater Blériot and the "looper."

Lord Edward Grosvenor Loops.

AT the Blériot School at Buc on Thursday of last week Lord Edward Grosvenor succeeded in looping the loop, while on the following day Mr. Robert Skene also accomplished the feat. Both pilots made similar flights on Saturday.

ANNUAL DINNER OF THE ROYAL AERO CLUB.

A REMARKABLE gathering assembled on Wednesday evening upon the occasion of the Annual Dinner of the Royal Aero Club at the Savoy Hotel, when the Marquess of Tullibardine, the Chairman of the Club, presided.

The principal guest of the evening was the First Lord of the Admiralty, Mr. Winston Churchill, who was enthusiastically received when he responded for the guests.

With Col. Holden rested the toast of "The Club," and he said that their prosperity was evidenced by the gathering that evening, but they looked forward to even greater extension. After ascertaining the members' views as to new Club premises, it was found a large majority was in favour of such extension. For the moment the new premises were, as it were, in the air, but they would probably materialise later. Last year, 364 pilots' certificates were granted by the Club, marking a great advance in the art, and emphasising the eagerness and the capability of the younger generation to come forward and pass the necessary tests for flying. Flying was really a great deal safer than was generally supposed. Taking the number of miles flown and the pilots at work, the accidents would compare favourably with those when travelling by train.

In regard to the Benevolent Fund, which the Club had instituted, the rules would very shortly be issued, and he hoped those who had hitherto supported aviation so generously would come forward to help endow that fund. Dealing with competitions, Col. Holden referred to the *Daily Mail* Round Britain Race last year, which was so generously promoted by the proprietors of that paper. Although he thought it was somewhat premature, it was all the more honour to those who produced machines which at least attempted the task, and in one case covered the greater distance of the route specified. He congratulated Mr. Hawker as the pilot, and Mr. Sopwith as the entrant of that machine. He thought that the prize would be won this year. In regard to the Atlantic flight, they had already one entry for this. Although there might be risk in the performance, there would, he said, be honour and glory attached to the achievement to compensate. This year the rules of the Gordon-Bennett Race were so drawn that really useful machines would be evolved and he hoped Great Britain would bring home the trophy. Again, there was the Mortimer Singer prize for combined land and water machines, which was won by Mr. Hawker, again on a Sopwith, whilst there were the two Michelin cups, part of a splendid series offered by the Michelin Company in the years gone past.

The Marquess of Tullibardine proposed the toast of "The Guests," and said that he thought that gathering was the largest ever held of those interested in aviation, and it was a record to have no less than 75 pilots sitting down to table together. Although amongst such a distinguished number of guests it was invidious to draw attention to any specially, he wished to mention one or two notable guests who were well known to those present. Firstly, M. Henry Deutsch de la Meurth, the President of the French Aero Club, to whom the great advance in aviation in France was largely due by reason of his generosity in every direction. There were also Dr. Glazebrook, of the National Physical Laboratory, Capt. Murray Sueter, of the Air Department, and one of our foremost pilots, and it was due to his great work that Service aviation had made such strides in this country. Again, Capt. Godfrey Paine, to whom had fallen the lot of actually supplying the Service pilots. He thought the Secretary of State had never done a wiser thing than when he put Brig.-Gen. Henderson, one of their most distinguished guests, at the head of the Air Department, which he now commanded. It was a very great task to establish rapidly a new science like this, and he thought it was a mistake to hustle a new department which was trying to do its best and was doing that best very well indeed. Finally, he mentioned the First Lord of the Admiralty, who they were very proud to welcome, because he introduced such great energy and interest into anything which he took up, and especially was that so in the art which they were that night gathered together to honour.

Mr. Winston Churchill, who was vociferously greeted upon rising to respond, said, I am glad indeed to have been accorded the privilege of being invited to-night on an occasion so interesting and so important in the life and experience of the Royal Aero Club, because I share with those who are present a deep and keen interest in the development of the art of flying by the people of these islands. Whether we deal with airships or aeroplanes, and airships have levied as large a toll of human lives in recent years, or almost as large a toll, as aeroplanes—we must recognise that we ourselves came very late into the field. Other countries on the Continent, both in regard to lighter than air and heavier than air machines, have been the pioneers. Now, not perhaps for the first time, we are engaged in the process of overhauling or catching up, and I am particularly interested in all the work in which you, ladies and gentlemen, are engaged, because the development of the Naval Flying Corps has taken place during the time when I have had the honour and good fortune to be charged with Ministerial responsibilities with regard to the Navy. I cannot but feel that I am specially lucky to have had responsibility at a time when these new things came, not indeed into bud, but into full efflorescence. Some people think it is a very melancholy thing that this new art of flying should have been appropriated so markedly as to have been almost monopolised by war and war requirements. Many people who are prepared to admire the scientific aspects of aviation wear a sorry look when they realise that at the present time its great driving power is derived from its military aspect and utility; but, after all, the two Services, the Navy and the Army, working together in flying, as thay have never before worked in co-operation with greater cordiality and comradeship, must be the main propulsive force of aviation in this country. We recognise absolutely the brilliant work and solid achievement of the foreign flyers in every sphere and every branch of aviation, but I think it is true to say that in the present circumstances nothing but the supreme stimulus of war considerations, and nothing but the large and generous floods of money which the taxpayer can provide, will carry aviation forward to the foremost place in the world. I do not think we can expect for some considerable time that pleasure flying will be indulged in on a large scale. I am not talking about mere sensationalism, or the very natural desire to see what a new thing is like, but if pleasure flying were ever to be solidly established in this country, it would be necessary that it should be possible to travel across country with a considerable degree of assurance that the passenger would reach his destination punctually and in good condition. And that unhappily is not possible at present. This is a particularly difficult country to fly in. Its land and its physical nature make it incomparably a severer test of aviation than do the conditions which present themselves on the Continent. And until British engineers are able to devise an arrangement of engines or a combination of engines which will ensure that the pilot is not forced to make an unexpected and possibly inconvenient landing it is not very hopeful that flying for the moment will reach a point at which it could be a sure foundation of strong propulsive power for our aviation services.

Col. Holden, who spoke earlier in the evening, referred to the question of risk, and I agree with him from what I have been told as to the conditions which prevail that the risk of flying is very greatly exaggerated by the newspapers. The ordinary man in the street only reads the headlines in the evening papers when some airman has been killed or injured, and so he assumes that these conditions are the ordinary, natural concomitants of adventure in the air. But since I have been at the Admiralty many more lives have been lost in the submarine service than in the air service, because when a submarine is destroyed by collision or accident twelve or fourteen persons are killed at the same time, whereas a smaller number are sacrificed in the aeroplane accident. It is a fact that there have been no more accidents in the Naval Wing of the Flying Corps in the last two years than accidents in the submarine service, and it is important that these facts should not be exaggerated, and that the public at large should realise that though there is an element of risk it is not such an undue or excessive risk as should prevent the development of the service on all lines. I do not know that there is any way in which the Aero Club and the public generally could advance the interests of flying in this country. The other afternoon, when we were discussing these matters in the House of Commons, a very strong opinion was expressed that there should be no public subscription, and that everything ought to be done by the Government. I do not quite agree. The Government ought to do everything in its power, but the public ought to come in too, and there are various ways in which it is proper and convenient that the public should lend assistance. For instance, the provision of landing facilities is a most important feature in the development of aviation in this country. I think that Lord Tullibardine and the Aero Club might guide the public on the path for providing satisfactory facilities, if not all over the country, at any rate along certain marked aerial routes. It ought to be quite easy, and not very expensive, to make a two or three-acre field into one at intervals, and to arrange for a small compensation fund for the farmer or landowner, which would enable aviation to be conducted much more safely and easier than at present. This is a subject for military and naval investigation, and it is a matter in which the public might be fairly asked to intervene and help. Then there is the question of insurance. I do not think the British aviator ought to make an excessive demand on the public, but he might reasonably ask his fellow countrymen to enable him to enjoy the ordinary insurance rates. There, again, Lord Tullibardine, is a field in which you might advance with your Aero Club and the influence you have with the public with a feeling that you could not go too far or get into trouble as you move forward.

The progress which has been made in the last few years and in the last year in this country has been very great. We have profited by all that has been discovered in other lands, and we have contributed ourselves in important particulars. Not only in aeroplanes, but in airships, things are done to-day which nobody would have thought it right or prudent to do twelve, and even nine, and even six months ago. The ordinary neophyte flies to-day in a way which an expert would have thought to be dangerous two years ago. We are talking more hopefully of flying the Atlantic than people talked two years ago of flying the Channel. I am bound to say that the attempt to fly the Atlantic is in present circumstances premature, and that an undue element of risk would appear to be attached to any such enterprise. Still the progress made has been enormous, and we cannot doubt that in the near future most of us here to-night will live to see heavy aeroplanes and great airships making voyages as a matter of ordinary and common experience, which nowadays we should look upon as a most extraordinary event. In this country we have our own ways of doing things, and we have not always got the prescience and forethought which are exhibited by our great rivals abroad. Still, when we begin to come along the road we generally make our way without showing any great inferiority, and this new art and science of flying is surely one in which Great Britain ought to be able to show itself, I do not say supreme in numbers, but supreme in quality. Perhaps flying is one of the best tests of national quality which exists. It is a combination of science and skill, of organisation and enterprise, which affords a more fitting field for the exercise of this quality than many of those games and competitions which are made the subject of international contest. The forces of our country are incomparable and unconquerable if only they are properly directed to their end. I, for my part, am glad to have lived so long in the world as to have seen the flying age. It has been reserved for the times in which we live, after so many philosophers have written, and so many inventors have failed, and so many dreamers have dreamed, to see flying a common-place and ordinary thing. That is a great fact, because one cannot doubt that the development of the flying art definitely and indefinitely enlarges the boundaries of human activity, and, judging by the position it has reached even to-day, it must in the future exert a potent influence, not only on the habits of men, but on the military destinies of states.

M. Henry Deutsch de la Meurthe also replied to the toast, first in French and afterwards more formally in English. He thought that by reason of the energy and devotion of the members of the Royal Aero Club, and the encouragement given by the admirable Press of this country, England had now no reason to be envious of other countries. The industry had developed here almost as well as in France. He did not like to think that such wonderful machines were in the future to be almost exclusively devoted to the art of war and for defence. He thought rather they would be the means of bringing peace to mankind and putting distant nations in close touch with each other, thereby bringing civilisation into the most remote parts of the world. Great development should result from the strong fellowship which had arisen between England and France and the London-Paris-London race he thought would be a real test of that great *entente cordiale* which existed between them and which he thought would accomplish very great things.

The presentation of prizes then followed, the chairman formally handing over to Capt. C. A. H. Longcroft, R.F.C., the Britannia Challenge Trophy, which had been unanimously awarded to him for the most noteworthy performance of the year. The chairman also thanked Mr. Barber, who had done so much for aviation, for offering this trophy.

The British Empire Michelin Trophy No. 1 and cash prize of £500 was then presented to Mr. R. H. Carr after a speech by Mr. Marc Wolff of the Michelin Company, in the absence of M. Michelin, who was unavoidably prevented from being present.

The final toast of the evening was that of "The Chairman," proposed by Brig.-General Henderson. He said Lord Tullibardine had always taken the keenest interest in aeronautics. He was one of the first to give help to an inventor when such inventors were treated as cranks or worse. With such a driver, the Club, he thought, would greatly benefit both from his experience and by his charm of manner.

The Marquess of Tullibardine, replying, said that he saw no difficulty in supplying the landing places suggested by the First Lord of the Admiralty provided the authorities would only inform them of the localities in which they were desired. He then made a very earnest reference to the splendid work done by the Secretary of the Club, Mr. Harold E. Perrin, to whom all members should be very greatly indebted, and Mr. Perrin, in replying, thanked the Chairman for his remarks, and paid a generous tribute to the perfectness of the work being due to a combination of effort amongst the whole of the staff of the Club.

. Amongst others present were Capt. Godfrey M. Paine, C.B., M.V.O., R.N., Major J. D. B. Fulton, C.B., R.F.A., Dr. R. T. Glazebrook, C.B., F.R.S., Prof. A. K. Huntington, Capt. Murray F. Sueter, C.B., R.N., Maj.-Gen. R. M. Ruck, C.B., Lieut.-Col. F. H. Sykes, R.F.C., Messrs. H. Barber, A. J. A. W. Barr, Lieut. B. H. Barrington-Kennett, R.F.C., Capt. W. D. Beatty, R.F.C., Lieut. Frank Beevor, C. Gordon Bell, N. P. Billing, R. Blackburn, H. A. Blackie, A. E. Bradshaw, Maj. W. S. Brancker, R.F.A., R.F.C., Griffith Brewer, Eng.-Lieut. E. F. Briggs, R.N., E. C. Bucknall, H. Massac Buist, R. H. Carr, Lieut. J. F. B. Carslake, R.N., R. O. Cary, J. Cates, Sir Claude Champion de Crespigny, Bart., R. L. Charteris, Capt. B. D. Corbet, Lieut. C. L. Courtney, R.N., Capt. Creagh-Osborne, R.N., Com. Mansfield Cumming, R.N., Davison Dalziel, M.P., Capt. H. Danvers, Capt. G. W. Dawes, R.F.C., Harry DelaCombe, Mrs. Dunville, E. C. Gordon England, Major B. D. Fisher, R.F.C., P. Gardner, Capt. R. R. Gibson, Percy Grace, Com. M. K. Grant, R.N., Major F. Egerton Green, Lieut. R. Gregory, R.N., Lieut. Spenser D. Grey, R.N., Lieut. R. H. Clarke Hall, R.N., G. Hamel, Sir Charles S. Henry, Bart., M.P., Lieut. T. G. Hetherington, R.F.C., W. Ballin Hinde, Stuart A. Hirst, B. C. Hucks, Charles Jarrot, Capt. J. H. A. Landon, J. H. Ledeboer, Cedric Lee, Sir Bryan Leighton, Bart., Sir Arthur Lever, Bart., Major F. Lindsay Lloyd, Capt. C. A. H. Longcroft, R.F.C., Lieut. A. M. Longmore, R.N., Major E. M. Maitland, R.F.C., Lieut. C. J. L'Estrange Malone, R.N., Lieut. W. H. C. Mansfield, Thomas Marlowe, Lieut. C. E. Maude, R.N., Fred May, Louis Noel, H. M. Norris, Mervyn O'Gorman, C.B., Lieut. Oliver, R.N., F. Handley Page, Capt. J. E. Pearce, N. S. Percival, A. Picard, Percy Richardson, A. V. Roe, Capt. W. G. Salmond, R.A., Capt. J. M. Salmond, R.F.C., Com. C. R. Samson, R.N., E. V. Sassoon, Com. F. R. Scarlett, R.N., Com. Oliver Schwann, R.N., T. P. Searight, Sir J. C. Shelley, Bart., Com. Shiraishi, Frederick R. Simms, Stanley Spooner, Com. Tanaka, G. Holt Thomas, Sir Inigo Thomas, G.C.B., Lieut. J. L. Travers, R.N., James Valentine, H. E. Voigt, Hubert Walter, Staff-Surg. H. V. Wells, R.N., Stanley G. White, T. F. Woodfine, Howard T. Wright, Warwick J. Wright, &c., &c.

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FLYING AT HENDON.

ON Thursday afternoon of last week some very good flying was witnessed at Hendon by a large crowd of visitors, the weather being excellent in every way. The "Willows" airship was very much in evidence during the afternoon, making several flights round about the aerodrome. Lieut. Spencer Grey put up some speed work on the 90 h.p. Sopwith biplane which is stationed at Hendon. This machine has a 90 h.p. Gnome engine, and is a large edition of the "tabloid" biplane which Mr. Hawker has taken out to Australia, the principal difference being that it has *ailerons* instead of wing warping. Claude Grahame-White went up on the 50 h.p. G.-W. tractor biplane "Lizzie," and Philippe Marty took a passenger to Brooklands and back on the 80 h.p. Morane-Saulnier. Louis Noel was busy all the afternoon on the 80 h.p. Blériot monoplane, and also on the Maurice Farman biplane. The G.-W. 'buses were "up and down" until dusk, piloted by Messrs. R. T. Gates, W. Birchenough, R. H. Carr, J. M. Cripps, and L. Strange.

The Hendon meeting on Saturday afternoon was also favoured with fine weather and a large attendance, and was also the occasion of the second visit to the aerodrome of the First Lord of the Admiralty, Mr. Winston Churchill, who was accompanied by Mrs. Winston Churchill. Early in the afternoon Lieut. Spencer Grey ascended on the 90 h.p. Sopwith, and remained aloft for 2¼ hrs., reaching a height of 10,500 ft. Shortly after landing from this long flight he took up Mr. Winston Churchill for a flight. In addition to a speed handicap, numerous exhibition and passenger flights were put up by the following:—W. Birchenough, J. M. Cripps, and L. Strange on G.-W. 'buses, R. H. Carr on "Lizzie," Philippe Marty on the 80 h.p. Morane-Saulnier, Louis Noel on the Blériot and the Maurice Farman, Pierre Verrier on a Maurice Farman, and J. L. Hall on his Avro. The speed handicap was flown in two heats of four laps each, and a final of six laps. In the first heat J. M. Cripps on the 50 h.p. G.-W. 'bus, with a start of 3 mins. 3 secs., came in first with Philippe Marty, who started from scratch on the Morane-Saulnier, second, only ⅕ sec. behind. R. H. Carr on the G.-W. tractor (40 secs.) came in third, about 12 secs. after Marty.

W. Birchenough, on another G.-W. 'bus, and J. L. Hall, on the Avro, also competed. The second heat was made up of the following: L. Strange on a 50 h.p. G.-W. 'bus (2 mins. 4 secs.), Claude Grahame-White on the 70 h.p. Maurice Farman (1 min.

34 secs.), Pierre Verrier on a similar machine (36 secs.), and Louis Noel on the 80 h.p. Blériot (scratch). Grahame-White managed to maintain the lead throughout and crossed the line first 5 secs. in front of Verrier. Strange came in third 9 secs. behind Verrier and 1 sec. ahead of Noel. The competitors for the final heat were Cripps (5 mins. 12 secs.), Grahame-White (2 mins. 35 secs.), Verrier (1 min. 1 sec.) and Marty (scratch). Cripps arrived home first, with Grahame-White 3 secs. behind, and Marty third, 5 secs. after Grahame-White. Verrier retired after completing about five laps.

There was plenty of flying at the aerodrome the next afternoon, Sunday, from 2.30 p.m. until dusk; at one time about half-a-dozen machines were up in the air together. There were several notable visitors present, amongst whom may be mentioned the Crown Prince of Wurtemburg, Lady Vita Pery, and Miss Sybil Arundale, the well-known actress. The Crown Prince made a flight with Grahame-White, and the latter with Louis Noel. The other flyers were P. Marty on the Morane-Saulnier, P. Verrier on a Maurice Farman, R. H. Carr on the G.-W. tractor biplane, J. L. Hall on his Avro, and W. Birchenough, J. M. Cripps, and L. Strange, all on G.-W. 'buses, and F. W. Goodden on the Caudron.

The March meeting will take place to-day (Saturday), commencing at 3 p.m., the principal event being a 16-mile cross-country handicap.

On Saturday, March 21st, the "Aero Show" Speed Contest will be decided, and the chief prize for this race will be the "Shell" Trophy and 50 gns., presented by the distributors of "Shell" Motor Spirit, whilst during the Easter Holidays, which mark the opening of the Hendon Summer Season, the seventh London Aviation Meeting will be held, and will extend from April 9th to 13th, inclusive. Ten flying races are down for competition for prizes value £400.

With the approach of the spring, a good deal of activity exists at the various flying schools at Hendon. Prince Léon Sapieha of Krasiczyn, Austria, has recently joined the Grahame-White school.

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EDDIES.

THERE is no doubt that there will be a very strong flavour of the sea about the forthcoming Olympia Show, for quite apart from the motor boat section of the exhibits, it is evident that a good proportion of the flying machines to be seen will be for use over water. In fact, all the indications point to the probability that 1914 is to be a notable one for hydro-aeroplaning. This indication is confirmed by the great amount of activity in this direction which is being displayed at the boat-building centres in the neighbourhood of the Solent. The river Medina has often left the impression with me of being a miniature Clyde in the South, and the coming of the aeroplane has meant a great increase in the amount of business done. At the huge works at East Cowes of Sir Samuel White and Co., which have overflowed on to the west bank, there has been a considerable increase in the number of workmen, and they are as busy as bees, working on Government orders, which, being interpreted, means many fine seaplanes, fitted with 200 h.p. Salmson motors, for the "King's Navee." Some very fine flying has recently been done on the "Wight" seaplane by Mr. Gordon England, who, by the way, must be kept pretty fully occupied between the "Wight" seaplane and the Cedric Lee machine at Shoreham.

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Progress is being reported at Mr. Pemberton Billing's new works at Woolston; although the main workshops are not yet clear of the builders, the first batch of flying boats, or "supermarines," as Mr. Pemberton Billing prefers to call them, have been laid down. The main workshop has two floors 300 ft. long, and a covered floating dock capable of holding ten or a dozen seaplanes at a time is part of the scheme. These first machines are being fitted with 50 h.p. Gnomes, and the price at which it is intended to put them on the market will be something of a revelation. Apart from the work of construction, I understand that arrangements are under consideration for running a regular service to and from the Isle of Wight.

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Across the Southampton Water, the Hamble River, Luke and Co. are constructing several large seaplanes, for the design of which, I understand, Mr. F. Murphy, late of the Bristol Co., is responsible. The machine is of the pusher type, built on standard lines, and fitted with two floats and a *nacelle* of cigar shape, having accommodation for the pilot and passenger, and should prove a very handy machine indeed.

At Bognor, Messrs. White and Thompson are finding themselves kept fully occupied in connection with the concession for the Curtiss aeroplanes and flying boats and engines—they are too busy, in fact, to spare the time to exhibit at Olympia. In addition to the waterplanes, a land machine of the pusher type, having a double *fuselage* and a single propeller is being built, more especially, I understand, to demonstrate the Curtiss engine. Competitors for the *Daily Mail* circuit will certainly find a formidable opponent in the Curtiss flying boat, and I feel even more convinced than before that that little cheque will have to be drawn before the year is out.

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The utility of the modern aeroplane was demonstrated in a very practical manner on Monday last. Mr. Ridley Prentice, of the G.A.C. and its allied companies, had a very urgent call, over the 'phone, to Farnborough. He did not happen to be in his office at the moment, and when the office managed to get into touch with him much valuable time had been spent; so much so that it appeared almost hopeless to think of going. Suddenly it was remembered that Pierre Verrier was making one of his bi- or tri-weekly trips to deliver a Farman machine—had he left? A ring up on the 'phone to Hendon settled the question. He had not, but was just about ready. A run out to the aerodrome in the car, and almost before he could realise it, Verrier deposited Mr. Ridley Prentice safely at the R.A.F. in time for the business on hand. In no other way was it possible for him to have kept the appointment, and even returning in the usual way on Mother Earth, he was able to be back in his office before lunch.

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A very good account of itself is being given by the latest tractor biplane, turned out by the Bristol Co., and with which Sippe has been doing a good deal of flying over the neighbourhood of the works at Filton. Last Thursday week, Lieut. Hazell, of the Royal Flying Corps, flew over from Salisbury and Sippe accompanied him on his return journey as far as Chipping Sodbury, going back at an altitude of fully 4,500 feet. He was out again Friday, morning and afternoon, and on Saturday morning putting up some remarkable banked turns, landing by means of spiral *vol plané* from over 1,000 feet every time. Sippe has also taken a good many passengers for joy rides on the machine.

"WILL O' THE WISP."

FLIGHT

BRITISH NOTES OF THE WEEK.

Gordon-Bennett Race.

THE Aero Club of France has received four challenges for the Gordon-Bennett Race, so that, including France, five nations will be represented in this year's contest. France, Great Britain and the United States will each have a full team of three, while Germany and Italy will each rely upon a single challenger.

And for the Schneider Cup.

So far the only countries which have officially entered for the International competition for the Schneider Cup for hydro-aeroplanes are Germany, France, Great Britain and Switzerland; it is stated, however, that an entry has been sent in by the Aero Club of America. France is the only country which has entered a full team of three.

The Gordon-Bennett Balloon Race.

THIS year's contest for the Gordon-Bennett Balloon Cup promises to be a three-cornered one. The countries which have entered are United States, France and Germany, and each intends to be represented by three balloons.

'Ware Kite Lines at Farnborough.

IN a *communique* from the War Office it is notified for the information of all aviators flying to and from Farnborough that military kites are sometimes flown in close proximity to the mooring mast and flagstaff west of the Queen's Hotel. These kites fly at heights varying from 2,000 to 600 feet and are attached to a wagon on the ground by means of a wire cable. The kites are conspicuous, but the wire, which usually leaves the ground at an angle of 45 degrees to the perpendicular, cannot easily be seen, and special care is necessary in order to avoid it.

Brooklands Aero Club Annual Dinner.

MR. SOPWITH will again take the chair at the Annual Dinner of the Brooklands Aero Club, fixed for the Thursday in Aero Show Week (March 19th) at Olympia (Pillar Hall). A hearty welcome will be accorded to all past or present Brooklands pilots or pupils or their friends, and a record muster is expected. Tickets (*7s. 6d.* each) may be obtained from the Hon. Sec., Mr. Frank Wright, "Glendale," Osborne Road, Walton on Thames.

The Slack Fund.

THE following is a further list of subscriptions received to date in connection with the above fund:—F. Leonard's Lodge, £4 *19s. 6s.*; R.F.C. (Upavon), £2 *3s.*; British and Colonial Aeroplane Co., E. S. Eastbourne, £2 *2s.* each; 56th Div. St. John Ambulance, £1 *10s.*; Integral Propeller Co., £1 *1s.*; M. Manton, F. D. Jackson, *10s.* each; D. W. Cutchinsore, G. F. Dean, Chas. H. Haigh, P. H. Hargreaves, *5s.* each; "Droitwich," G. B. S. (Harrogate), L. H. 55095, R. A. Broomfield, A. Moore, Oscar Barthel, H. C. Grove. J. C. Strocker, *2s. 6d.* each.

Mr. Hucks at Nuneaton.

DURING the latter half of this week Mr. B. C. Hucks has been at Nuneaton, and in addition to the exhibitions arranged for Thursday, demonstrations of looping the loop and upside-down flying will be given at the aerodrome, Nuneaton, this (Saturday) afternoon, commencing at 3 p.m.

Hucks and Hamel at Hendon.

ARRANGEMENTS have been made for Mr. B. C. Hucks and Hamel to give combined displays of looping the loop and upside-down flying at Hendon on Thursday, 12th, and Saturday, 14th inst. The displays will take place each day between 3.30 and 5.30 p.m.

The Willows Airship Over London.

A VISIT to the City was paid by the Willows airship on Friday of last week. Leaving the London Aerodrome, Hendon, at 4.40 p.m., with Mr. Willows in charge and Mr. Howarth as passenger, the airship followed the Edgware Road to the Marble Arch, and then made her way east, along Piccadilly and over Trafalgar Square, &c., to St. Paul's Cathedral. Passing round the dome, the airship was steered across the Thames at Blackfriars, and kept over the south side of the river to the Houses of Parliament. "Big Ben" was passed at 5.30 p.m., and after crossing St. James's Park to Buckingham Palace, the vessel steered a straight course back to Hendon, which was reached at five minutes past six.

Mr. Busteed's Bereavement.

THE many friends of MR. H. R. Busteed will be sorry to hear of the heavy loss which he has sustained by the death of his mother a few days ago in Australia.

Cellon for Models.

WE are informed that Messrs. Cellon, Ltd., have placed with Messrs. J. Bonn and Co., Ltd., the sole agency for the sale of Cellon for model aeroplanes, and all enquiries respecting this well-known dope for models should now be addressed to Messrs. J. Bonn and Co., Ltd., 97, New Oxford Street, W.C.

Messrs. Cellon, Ltd., are now making up a new solution, which is specially suitable for model work, and which is known as Cellon No. 14.

A Remarkable Publication.

WHAT is claimed to be the largest special sale list is the catalogue which has been issued in connection with the Garnage Salvage and Stocktaking Sale which is now proceeding. It is stated that 800 miles of paper, 15 ins. wide, have been used in its production, while the number which has been issued would allow one page of matter for every six people in the United Kingdom. Among the multitudinous array of bargains which are set forth in this unique list, we notice several in the way of wireless telegraphy sets, &c., which would be of interest to many of our readers.

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MESSRS. SHORT BROTHERS' NEW AEROPLANE WORKS AT ROCHESTER.

IT is always a matter for congratulation when a manufacturer finds that it has become necessary to extend his works; and in this particular case, having in mind the splendid pioneer work carried out for many years by Messrs. Short Bros., one cannot but regard this necessity, which has been thrust upon them partly as the result of difficulties associated with the provision of suitable housing accommodation for their workmen, as richly deserved.

The new works, to which reference was made in these pages some little time ago, are situated on the banks of the Medway at Rochester, just above Rochester Bridge, and will supplement Messrs. Short's existing factory at Eastchurch. The ground upon which the buildings stand has a gentle slope down to the river's edge and is approached by a fine wide level road, which terminates at the entrance to the works, where the general offices and the reception rooms and the cycle sheds for the staff are located. The site is an admirable one for an aeroplane works, where hydroplanes are intended to form such a large proportion of the machines manufactured, on account of its proximity to the river, from which it is separated by a narrow footpath.

At the present time two shops have been erected, each 60 feet wide and 240 feet long. One of these, that nearest the river, will serve as an erecting and assembling shop, whilst the other, which lies immediately behind the former, will be divided into four parts for the sawmills, machine shop, fitters' shop and covering department. The machinery will probably be driven by a 50 h.p. gas producer plant, similar to that which has proved so successful at Eastchurch. The drawing office is situated in the corner of the erecting shop (from which, however, it is entirely separate) and overlooks the river. Both main buildings are exceptionally well lighted and are of very substantial construction, the walls and roofs being matchboarded on the interior, and covered on the outside with a heat resisting material known as Uralite, in which asbestos is the principal constituent, so that the shops should be cool in summer and warm in winter. These buildings are provided with sliding doors that open on to the roadway between the two main shops, and give openings about 60 ft. wide, which, having regard to the firm's present developments in aeroplane construction, is considered to be ample for all purposes. Advantage has been taken of the sloping character of the ground to utilise the space beneath the flooring for the storing of timber, spare parts, accessories, &c. A separate building for the reception of an engine-testing plant will shortly be erected at the end of the machinery shop.

A slipway is to be built at the end of the present erecting shop, reaching out for a distance of about 100 to 150 ft. into the river, so that the finished machines will be taken on to the roadway, transported to the slipway and "taxied" down the river to Sheppey. If desired, however, there should be no difficulty in making the journey by air as the long wide stretch of water in front of the works, which is always sufficiently free from traffic, would permit an ascent to be made therefrom.

The possibility of future extensions being required has not been lost sight of, and the present buildings have been so placed that four shops, similar to those now in existence, and placed in the same position relative to the river, can be erected upon the ground already acquired by Messrs. Short Brothers. It is anticipated that the new premises will be ready for occupation next month. We wish Messrs. Short every success in their new enterprise.

FOREIGN AIRCRAFT NEWS.

More Passenger Records by Sikorsky.

IT is announced from St. Petersburg that on the 26th ult., Sikorsky, on his latest "Grand" biplane, carried sixteen persons, the weight lifted being 1,200 kilogs., for a period of 18 mins. He had previously flown with eight and with fourteen passengers. The next day, with eight passengers, he flew from St. Petersburg, by Gatchina, to Tsarkoie-Selo and back, the flight taking 2 hrs. 6 mins.

Photo by Mr. W. Oswald Watt.

M. Jacques Schneider attending to his aerial-driven glisseur on the Nile before taking Lord Kitchener for a trip. This de Lambert-Tissandier craft is driven by a 120 h.p. Salmson motor, and attains a speed of 50 m.p.h.

New Passenger Height Records.

ON the Schmitt biplane at Chartres on the 25th ult., Garaix succeeded in regaining for France the world's height record for pilot and four passengers by going up to 3,150 metres (10,335 ft.). The previous record made by the German Thelen was 2,850 metres. On Monday Garaix also secured the record for pilot and three passengers by climbing to a height of 3,300 metres (10,900 ft.) during a flight of an hour and a quarter. The previous record was 2,830 metres, to the credit of Sablatnig.

Double Fatality at Amberieu.

WHILE flying a machine, which they had built themselves, at the Amberieu aerodrome on Sunday, two brothers, known as Pierre and Gabriel Salvez, but whose real name is said to have been Wroblewski, fell from a height of thirty metres into a quarry. One of the brothers was killed on the spot, and the other died on the way to the hospital.

More Farmans for Spanish Army.

CONSEQUENT upon the good work effected by the Farman machines, most of them having been in use for about two years, attached to the Spanish forces in Morocco, the Spanish Government have ordered a number of the latest model M. Farmans, and last week Fourny was at the Four Winds aerodrome, Madrid, putting the first batch of the new machines through their official tests.

An Honour for Hirth.

INCLUDED in the list of honours issued in connection with the birthday of the King of Wurtemburg appeared the name of Helmuth Hirth, the well-known German pilot, who has been promoted a Knight of the Order of Frederic.

Chevilliard at Rome.

ON Saturday last, Chevilliard gave an exhibition of looping the loop, &c., at the Centocelle aerodrome, Rome, on his Farman before the King and Queen of Italy.

Pegoud Teaches an Italian to Loop.

AFTER being instructed by Pegoud, the Italian pilot, Dal Mistro, succeeded in looping the loop four times on Pegoud's Blériot at Milan on the 24th inst., and then purchased the machine. Subsequently it was discovered that the machine had been maliciously tampered with, and enquiries are now pending as to who is responsible for the act of *sabotage*.

German Aerial Visitors to Russia in Prison.

IT is announced from Berlin that the German aviator Mischewsky, who landed at Warsaw after a non-stop flight of 10 hrs. 7 mins., as well as the German balloonist Berliner, who landed at Perm after beating the world's record for distance, are still being detained by the Russian authorities on charges of espionage.

A Russian Looper.

THE well-known Russian pilot, Effimoff, is one of the latest to join the ranks of the loopers. He succeeded in accomplishing the feat for the first time at Buc on Monday, and intends to make a tour of Russia, giving exhibitions at the principal places.

Fatal End to Turkish Flight.

CONTINUING their journey towards Jerusalem, the Turkish Military pilot Capt. Fethi and his passenger Lieut. Sadik, left Damascus on Friday morning of last week and the next news of them was that the machine and the bodies of the two officers had been found partly burnt at Samar near the lake of Tiberias and about 100 miles from Damascus. It is conjectured by Lieut. Nouri, who is engaged on a similar flight that the machine was caught in a *remous* and dived to the ground. The two officers were buried in the courtyard of the mosque of Salaheddin Eyoubi at Damascus.

Fatal Accident to Newbery.

AVIATION in Argentina can ill afford to lose any of its disciples, and the fatal accident to George Newbery, the President of the Argentine Aero Club, will leave a gap which it will be hard to fill. For some time he has contemplated flying across the Andes and it appears that while making an attempt to carry out the feat on Sunday the monoplane fell, resulting in fatal injuries to the pilot, while the passenger, Lieut. Rastra, was seriously injured.

Photo by Mr. W. Oswald Watt.

M. Jacques Schneider's aerial-driven glisseur on the Nile.—At the wheel is M. Jacques Schneider himself, and on his left is Lord Kitchener, bound for a trip in this unique craft.

Models

Edited by V. E. JOHNSON, M.A.

An Attempt to find the most suitable Wing Shape for Model Monoplanes of the Loaded Elevator Type.

By JOHN M. HERON.

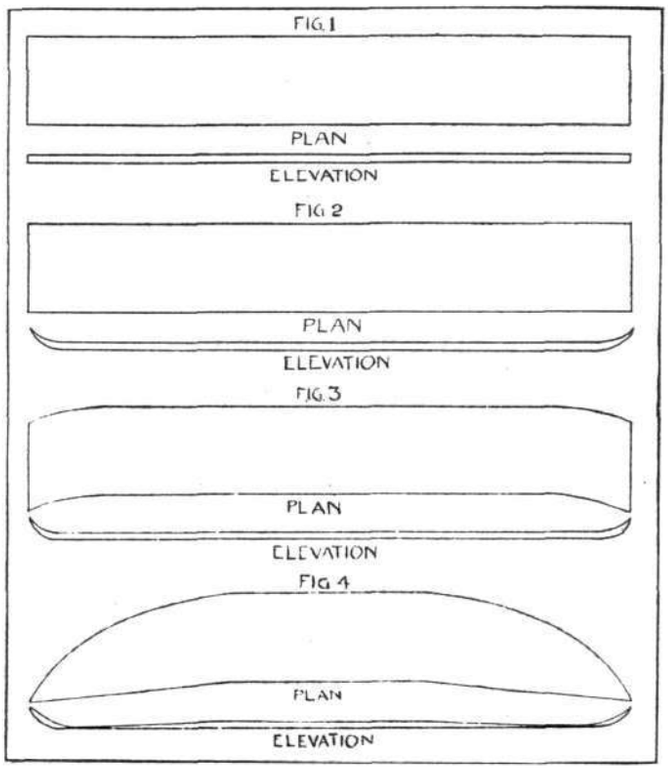
The experiments were carried out with wings of 30-in. span and 4½-in. chord fitted to a 36-in. A-type frame; the elevator employed was oval in shape, uncambered, of 3½-in. span and 2-in. chord. The motive power was two 10-in. bent wood propellers, with eight strands of ⅛-in. strip rubber to each.

Experiment 1.—A rectangular wing with ½-in. camber (Fig. 1). Flight very erratic, great tendency to dive, no lateral stability, the model frequently diving sideways and alighting on the wing tip.

Experiment 2.—A similar wing to No. 1, but with the tips upturned 1 in. (Fig. 2). Flight still erratic, with a decided tendency to dive, but great lateral stability, the model quickly righting itself, even when launched at an angle of 45° to the horizontal.

Experiment 3.—A semi-crescent shape wing with ½-in. camber. Tips upturned 1 in. and retreated 1 in. from the leading edge (Fig. 3). Flight steady but with a slight tendency to dive. Great lateral stability.

Experiment 4.—A crescent shape wing with ½ in. camber at the centre, gradually decreasing to a wash-out at 3 ins. from the tip,



¼ in. reverse camber 1½ ins. from the tip. Tips upturned 1 in. (Fig. 4). Flight very steady, with no tendency to dive. Great lateral stability. This model was not upset by even strong gusts of wind.

Deductions.—A flat wing such as No. 1 posesses little lateral stability, because when struck by a side gust the tip is either lifted or depressed, and the model, being unable to right itself, dives sideways to the ground; whereas a wing with upturned tips such as Nos. 2, 3, and 4, when struck by a side gust, immediately it starts to dive sideways, is brought back to the horizontal position by the upward curve of the tip.

Again, a rectangular wing shape such as Nos. 1 and 2 have a tendency to dive because any decrease in speed of flight of the model brings the weight of the elevator into play, the nose tends to fall, and the model dives until the speed of flight increases sufficiently to enable the model to elevate once more, this diving and elevating continuing until the driving power of the rubber motor is expended; whereas a crescent shaped wing with its retreated tip and its reverse camber, such as No. 4, overcomes this tendency to dive in same manner as the upturned tip overcomes the sideways dive, the model when launched rising in the air and gradually, as the power of the motor becomes expended, planing gracefully to earth.

[With regard to the diving referred to above, a great deal depends on the position of the c.g. and the correct size and setting of the elevator. When one sees models of types 2 and 4 flown by expert flyers of these respective types, it is not unfrequently very hard to say which shows the greatest longitudinal stability. Type No. 4 has undoubtedly the greater possibilities.]

Some Suggestions for 1914 Competitions.

The Royal Aero Show at Olympia will very soon be here, and the results of the model competitions, with their lessons, will be, ere long, a thing of the past. Whether club secretaries generally will wait until the results of these competitions are known before drawing up their summer programme, I do not know. Probably, in any case, some dates will, at any rate, be left open. However, apart altogether from any considerations referring to the above, it appears to the writer that, broadly speaking, something in the way of finality has been reached by our present methods, and that it would be as well to break fresh ground, in some directions at any rate. I have no doubt that during the present summer most, if not all, of the present "records" will be broken, and some new ones of an entirely different character will be established. We are also bound to have some very interesting and probably very exciting and closely contested competitions of a sporting character between the different clubs for the Farrow Shield, which should do much to keep existing clubs "going," and even add to their number. The two trophies offered by Sir John and Lady Shelley for power-driven models will, we hope, also lead to some interesting and valuable results, to say nothing of the forthcoming Exhibition competitions. But if we mean, if we really want, the model aeroplane to play that part in the development of the full-sized machine of the future which it both should and could play, and if we want the clubs and the movement generally to receive and *to continue to receive* proper official recognition and support, it is no use whatever standing still. It is no good whatever having the same kind of competitions year after year, whether the competitors be many or whether they be few. We must *progress*. We must keep on moving. We may not, as a matter of fact, we no doubt shall not, *always* be moving forwards, sometimes we may go back; it may be necessary to do so in order to find a new road, a new path, which leads farther than the particular *cul-de-sac* in which we temporarily find ourselves. Above all, it appears to be a matter of the greatest importance to learn from the designer and constructor of actual full-sized machines what "types" appear to him to be likely types for the future, and to concentrate on those types, rather than on ones which, no matter how interesting or attractive in "model" form, stand no practical chance of being used in full sized work.

So far as aviation in this country is concerned, its most valuable asset (at present at any rate) undoubtedly appears to lie in the *military aeroplane*, both for land and water use. Such naturally divide themselves into two distinct types, the speedy scout and the swift but less speedy type of fighter. As to whether the first named should be either armed or armoured is a much debated question; but in both cases there is no difference of opinion about one point, and that is that both must have considerable flexibility in the matter of speed; and the further removed from what is known as the "tangent" machine, which has practically none, the better.

So far as the "fighter" is concerned, one of the most important items in connection with it is its ability to fire in every direction as far as possible. It should certainly be able to fire astern, as well as ahead. Suppose you are (purposely) running directly away from your enemy; having this power to fire directly astern, then you most certainly have him, who is firing directly ahead, at a decided disadvantage. You are flying away from his shots, he is flying directly into the teeth of yours. He is also firing directly into the relative wind, whilst you are not. Every shot you fire helps you on, owing to the recoil. Every shot he fires retards him for the same reason. Now the above considerations pave the way, I think, to two very interesting competitions, one for "Variation in Speed." The prize to go to the machine proving itself capable of flying the slowest as well as the fastest, or since it would not probably win "at both ends," to the machine exhibiting the greatest range of speed. There will no doubt be some difficulties in connection with measuring the speeds and so on. But if we are going to be deterred by such matters as this, we might just

as well give up even the idea of *pretending* to be scientific. Every art becomes more difficult the deeper you go into it, but Nature where she adds difficulty adds also brains for those who like to use them.

Another interesting competition would be a competition for machines, either without a tail, something after the Dunne pattern, or with twin tails like Mr. Kilshaw's model illustrated some time ago in FLIGHT. Twin propellers to be used, and their tips to be a sufficient distance apart for a gun to be fired directly in the rear. The range of the gun in front would obviously be some 180°, or nearly so. Very light bevel wheels can now be obtained, and if the wing construction (preferably of the swept back type) were strengthened the motors could probably run across them.

It would also be extremely interesting, and very possibly exciting, if we had some models large enough to carry a small toy cannon, to note the effects on the stability, course, &c., of the models when such were discharged (by means of a suitable slow match) whilst the machine was in actual flight. Any machine capable of carrying a weight of 2 to 3 oz. could do this. Some difficulty would no doubt be experienced with the "slow" match, which in this case would have to be a fairly "quick" one.

I merely give this suggestion, which surely contains sufficient of the "sporting" nature, for what it is worth, but it certainly appears to be quite within the scope of the present rubber-driven model.

Scientific Research Work.

So far the manner in which this has been taken up is extremely disappointing; practically speaking, the number of aeromodellists who are prepared to carry out such work appears to be an extremely limited number indeed. In fact, it appears to be quite useless to expect any useful results in this direction save in the case of a very few.

It is hoped, however, that the following plan, in which the ordinary aeromodellist would not be called upon personally to carry out any such scientific tests, save the designing, building, and actual flying of the machine, will overcome this difficulty. In other words, the machine to be tested for him *re* lift, drift, body resistance, effect of camber on centre of pressure, propeller thrust, slip, efficiency, &c., &c., whatever it might be, in the wind tunnel or on the whirling table, and the results made known to him. He to then carry out tests in actual flight *re* distance, duration, altitude, &c., whatever were required; and assuming that a prize was offered, it would be given for the machine showing the best all-round results.

Such would undoubtedly add to our present scientific knowledge of the aeroplane, and obtain that collaboration of all the various workers in the science by which alone can the best progress be made.

Experimental Records.

A model flying machine being a scientific invention and not a toy, every enthusiast in the science should make it his or her business to keep, as far as they are able, accurate and scientific records. For only by such means as this, *and the making known of the same*, can a real *science* of model aeroplaning be finally evolved. When anyone *has* obtained carefully established data, the next thing should be to *publish* them for the benefit of others.

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KITE AND MODEL AEROPLANE ASSOCIATION

Official Notices.

British Model Records.

Single screw, hand-launched	Duration ...	D. Driver...	... 85 secs.
Twin screw, do.	Distance ...	R. Lucas ...	... 590 yards.
	Duration ...	G. Hayden	... 137 secs.
Single screw, rise off ground	Distance ...	W. E. Evans	... 290 yards.
	Duration ...	W. E. Evans	... 64 secs.
Twin screw, do.	Distance ...	L. H. Slatter	... 365 yards.
	Duration ...	J. E. Louch	... 2 mins. 49 secs.
Single-tractor screw, hand-launched	Distance ...	C. C. Dutton	... 266 yards.
	Duration ...	J. E. Louch	... 91 secs.
Do., off-ground	Distance ...	C. C. Dutton	... 190 yards.
	Duration ...	J. E. Louch	... 94 secs.
Single screw hydro., off-water	Duration ...	L. H. Slatter	... 35 secs.
Single-tractor, do., do. ...	Duration ...	C. C. Dutton	... 29 secs.
Twin screw, do., do. ...	Duration ...	L. H. Slatter	... 60 secs.

Gift of Prizes.—The Council desire to thank Messrs. T. W. K. Clarke and Co. for their gift of a Cup for competition; also Mr. H. R. Weston, of the Star Aeroplane Co., for offer of two Silver Medals. The Challenge Trophy for Altitude Competition for Kites has been received from the donor, Mr. L. Ingram, and he has chosen a bronze eagle alighting on a rock, which will be appreciated, because it is out of the common.

Aero Show.—Up to time of going to press (March 2nd) the Hon. Secretary has received 156 entries, so that the last year's total of 162 actual exhibits will be easily beaten. All exhibitors will in due course have their numbers and passes posted to them.

Exhibits will be received from Friday morning, March 13th, until Saturday, March 14th, 1914, and must be in position on Saturday before 6 p.m.; none can be received before or after those dates.

Those sending by rail should advise the Hon. Secretary, and address as nstructed in Rule 10 of Rules and Regulations.

Affiliation.—The Windsor Aero Club have now affiliated to the Association.

27, Victory Road, Wimbledon. W. H. AKEHURST, Hon. Sec.

AFFILIATED MODEL CLUBS DIARY.

CLUB reports of chief work done will be published monthly for the future. Secretaries' reports, to be included, must reach the Editor on the last Monday in each month.

Aero-Models Assoc. (N. Branch) (27A, SEDGEMERE AVENUE, EAST FINCHLEY, N.)

MARCH 7TH, flying at Finchley 3 p.m., and March 8th 10 a.m.

Leytonstone and District Aero Club (64, LEYSPRING ROAD).

MARCH 8TH, flying, 10 a.m., on Wanstead Flats (if wet meet at clubroom). All models to be exhibited at Olympia must be in position by Saturday March 14th at 6 p.m.

Paddington and Districts (77, SWINDERBY ROAD, WEMBLEY).

MARCH 7TH, flying at Sudbury. Members exhibiting at Olympia are particularly requested to get their models tuned up to-day.

UNAFFILIATED CLUBS.

Finsbury Park and District (52, LAMBTON RD., STROUD GREEN).

MARCH 7TH, continuation of competition meeting, 4 p.m., at Finsbury Park (kite ground).

Ilford Model Ae.C. (83, ENDSLEIGH GARDENS, ILFORD).

MARCH 18TH, flying, Newbury Park, 10 a.m. (weather permitting). The club has offered a prize to the member who sends in the best design for a club badge. Members can send as many designs as they like. All designs must reach the secretary not later than March 14th, those coming in after the aforementioned date will not be considered.

S. Eastern Model Ae.C. (1, RAILWAY APPROACH, BROCKLEY).

MARCH 7TH, flying at Woolwich Common, 3 to 5.30 p.m. March 8th, Blackheath, 7 to 10 a.m. March 8th, Lee Aerodrome, 10.15 a.m. to 12.15 p.m. (weather permitting).

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NEW COMPANIES REGISTERED.

Airships, Ltd.—Capital £52,500, in 50,000 preferred ordinary shares of £1 each and 50,000 deferred ordinary shares of 1*s.* each. Acquiring the business carried on by G. H. Thomas at 47, Victoria Street, Westminster, as the Airships Co. First directors, G. H. Thomas and A. F. Thomas.

U.S.A. Austro-Daimler Aero Engine Synd., Ltd., Blomfield House, 85, London Wall, E.C.—Capital £2,500, in £1 shares (1,000 "A" and 1,500 "B"). Acquiring from J. S. Burns the benefit of an option held by him to acquire certain rights relating to the Austro-Daimler Aero Engine in the U.S.A. First directors, S. Caldwell, M. Trevor, W. B. Schloesser, and E. H. Chalmers.

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PUBLICATION RECEIVED.

The Inventors' and Patentees' Year-Book, 1914. By Wm. H. Taylor. Manchester: Dexter Press, Ltd., 3, Brown Street, Market Street. Price 7*s.* 6*d.* net.

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Aeronautical Patents Published.

Applied for in 1913.

Published March 5th, 1914.

3,519. A. E., H. L., AND H. O. SHORT. Floats and boats.
3,746. J. SAMUEL WHITE AND CO. AND — SMITH. Hydro-aeroplane floats.
3,848. S. L. WALKDEN. Aeroplanes.
6,047. W. H. KELLY. Flying machines.
10,801. O. T. GNOSSPELIUS. Floats for hydro-aeroplanes.
16,804. G. CALVIGNAC. Propellers for flying machines.
23,207. FRIED. KRUPP AKT.-GES. Sighting devices for missile-dropping appliances.
25,819. A. AHLBRECHT. Aeroplanes.

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